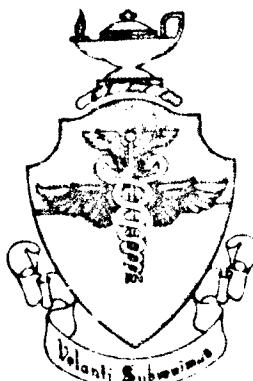
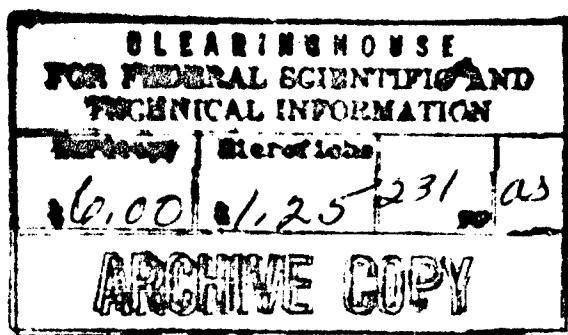
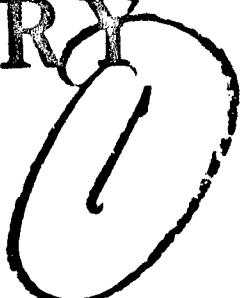


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FOR THE  
FLIGHT SURGEON



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USAF AEROSPACE MEDICAL DIVISION (AFSC)  
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NEUROPSYCHIATRY

FOR THE  
FLIGHT SURGEON

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John C. Mebane, M.D.  
Head, Department of Neuropsychiatry

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SCHOOL OF AEROSPACE MEDICINE  
USAF AEROSPACE MEDICAL DIVISION (AFSC)  
BROOKS AIR FORCE BASE, TEXAS

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## THE FLIGHT SURGEON'S OATH

I accept the sacred charge to assist in the healing of the mind as well as of the body.

I will at all times remember my responsibility as a pioneer in the new and important field of aviation medicine. I will bear in mind that my studies are unending; my efforts ceaseless; that in the understanding and performance of my daily tasks may lie the future usefulness of countless airmen whose training has been difficult and whose value is immeasurable.

My obligation as a physician is to practice the medical art with uprightness and honor; my pledge as a soldier is devoted to Duty, Honor, Country.

I will be ingenious. I will find cures where there are none; I will call upon all the knowledge and skill at my command. I will be resourceful; I will, in the face of the direst emergency, strive to do the impossible.

What I learn by my experiences may influence the world, not only of today, but the air world of tomorrow which belongs to aviation. What I learn and practice may turn the tide of battle. It may send back to a peacetime world the future leaders ~~of this~~ country.

I will regard disease as the enemy; I will combat fatigue and discouragement as foes; I will keep the faith of the men entrusted to my care; I will keep the faith with the country which has singled me out, and with my God.

I do solemnly swear these things by the heavens in which men fly.

## P R E F A C E

"Neuropsychiatry for the Flight Surgeon" is an outgrowth of lectures and seminars presented at the School of Aviation Medicine, USAF during the past several years. As such, the author owes much to the guidance of his predecessors, Doctors John J. Kavanagh and William F. Sheeley.

The composition of this manual reflects the teaching goals of the Department of Neuropsychiatry: aviation medical officers are most effective if their clinical practice is comprehensive in its approach to the patient and his setting, and observes sound psychiatric principles.

It is assumed that the student has been exposed to basic psychiatry. Therefore, this text emphasizes an understanding of the complex interpersonal and social problems of the Air Force environment, and their impact upon flyer and doctor alike. Certain topics have been amplified or introduced beyond their consideration in the "Flight Surgeon's Manual" or in Air Force Manual 160-1 (Medical Examination): clinical diagnosis and psychosomatic problems are reviewed in the military setting; the Adaptability Rating for Military Aeronautics is explained in detail; neurological problems and psychological reactions to flying stress are emphasized. The vitally important work of the Flight Surgeon in mental health is introduced. These presentations serve to clarify and refine the Flight Surgeon's responsibilities and practice, and are in essential agreement with official Air Force publications on these subjects.

Because the aviation medical officer often finds himself dealing with the problems of non-flying personnel, this manual is expanded somewhat to consider "Air Force Psychiatry" as well as "Aviation Psychiatry." Some knowledge of administrative and forensic matters is essential to the medical officer who must function more or less independently.

What does the Air Force offer in specialized psychiatric and neurologic care? How are such referrals and consultations arranged? These are other questions for which this manual attempts to furnish answers.

Finally, it is hoped that this exposition of neuropsychiatry in the setting of the United States Air Force will stimulate our students to explore these problems more extensively. For this reason, a detailed bibliography has been appended focusing on the various chapters.

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## CHAPTER I

### INTRODUCTION TO AIR FORCE NEUROPSYCHIATRY

"I will accept the sacred charge to assist in the healing of the mind as well as of the body." These are the first words of the Flight Surgeon's oath. Is such deeply-rooted conviction not sufficient? May not the physician, mindful of these words, now direct his energies toward adapting man to new machines, toward supplementing human organ systems with life-sustaining equipment? The answer is a qualified yes. As technical knowledge of physiology and engineering has advanced, there have also been rapid and significant developments in medical psychology. Much has been learned and systematized about man's thoughts, feelings and behavior. The well-trained flight surgeon calls upon this knowledge as regularly as he does his understanding of cardio-respiratory dynamics or physical standards. It is not enough, however, that aviation medicine has always been alert to the emotional overtones of its sphere of interest. The deep emotional meanings of flying are as much a part of the flyer's life as the air he breathes or the food he eats. The flight surgeon is expected to understand these meanings and to incorporate them into effective medical practice. Within this framework the flight surgeon is expected to put into effect psychiatric techniques which have been found useful in the practice of medicine among flying personnel. No study of aviation medicine would be complete, therefore, without treatment of the emotional qualities of the flying environment.

From the time when Man first contemplated with wonder the swift flight of birds, flying has been invested with power, magic and tantalizing challenge. The early efforts of Daedalus and Icarus, the patient engineering designs of Michelangelo, the persistent genius of the Wright brothers and the martyrdom of Billy Mitchell -- all of these and many more savour of the determination of men who dedicated not only minds, but souls as well, to the conquest of the air. Today we have vast air fleets, far-flung commercial air transportation and global airpower, but the lingering spirit of the early giants of aviation spurs men on toward the conquest of space. But, to argue that the emotional investment of these pioneers has disappeared beneath an avalanche of technical development would be a gross misunderstanding.

Surpassing the speed of sound, hurtling through thin upper air from one continent to another, defying the onslaughts of weather with skilled use of instruments -- these are only a few examples of the feeling of power a flyer experiences.

The aviation world is exciting and stimulating. It is filled with contrasts only a flyer can appreciate. Life and death are sometimes only a second in time or a flick of the wrist apart. In a

world whose frontiers are rapidly disappearing aviation represents an advance upon a new world, with all the aspirations this implies. Flying is an escape. Problems of the work-a-day world recede in importance as one speeds aloft in a high performance aircraft. The harsh realities of earthly life become softened, remote, even unreal.

But the tantalizing offering of power, drama and escape which aviation makes to the military flyer is not without its corresponding demands. Aviation is no longer the all-absorbing pursuit of the select few. Broadened activities have swept into flying roles a multitude of personalities of diverse needs and drives. It is the conflicts growing out of military aviation's demands made upon the personalities of flyers which the flight surgeon must learn to appreciate. The present day aircrew member finds that his duties impose tremendous energy requirements. Pre-flight planning and inspection of aircraft before a mission frequently requires several hours. High performance aircraft when aloft demand constant vigilance and accuracy of calculations for which a single man or a tightly knit crew are responsible. Aerial refueling techniques have extended missions many hours. The fulfillment of a mission rests upon long experience, intensive training, robot-like precision -- yet with ever constant need for the sensitivity of human judgment. Return from a mission is followed by intensive and thorough debriefing before any rest is possible.

For all the glamour and excitement of military aviation, the flyer well knows that danger is always present. Whether a routine training flight or a combat mission, the flyer knows that there is a definite degree of risk. It is highly significant, for example, that the USAF lost as many men in stateside aircraft accidents in World War II as in all combat operations during this same war. Combat merely poses added factors. The Air Force has a continuing expectation of a certain number of aircraft accidents in any given period. This fact is undeniable and a constant challenge to the flight surgeon. The flyer recognizes this clearly. Studies in flying safety tell what his risks will be for type of aircraft, type of weather or phase of flight. He takes little comfort in knowing that most of his accidents will be attributed to "human error."

It is stressful for the flyer to know that in many difficult situations he is entirely passive. He is passive, for example, in being unable to predict in-flight emergencies. He is vulnerable to surprise. Enforced passivity is stressful for every human but more for some than for others. Some accept passivity and are therefore emotionally well suited to certain kinds of flying. For others, the need for activity and aggression is greater and limits adaptability to flying. In this regard, the differing personalities of single and multi-engined pilots have been referred to by many medical observers.

The flyer knows that his world will never remain the same. The man and his setting are subject to rapid 'turnover.' His duties and his environment change endlessly and with little notice. Group

loyalties and identifications are hard to form and even harder to break. The flyer who finds himself happily proficient in combat fighter duties recognizes that he may in a few short months find himself in an entirely different assignment. The combat ace may be seriously unhappy as an instructor pilot or as an aide to a General. The air transport pilot greets upgrading to high performance jet aircraft with mixed feelings. The flyer of today accomplishes his mission with energies and emotions which he may not find available in 5 or 10 years. Yet he must keep ahead of the young man at his elbow. The successful pilot may look with longing on the aircraft he flew a few short years before but which now is obsolete. The love and admiration for aircraft he has come to know completely is not easily transferred to sleek, new but unproved models. Endless change is characteristic of the world in its political activities. The week-to-week changes in international events have a tremendous impact on the flyer's personal as well as military life. The energy the flyer devotes to his duties is keenly responsive to the fluctuating security of the civilian population he exists to defend.

For the flight surgeon, who is deeply concerned with the mental health of his flyers, there is a reassuring yet sober thought: despite the technological advances which abound in the flying environment, the man who operates and is responsible for aircraft has changed little over the centuries. Man today 'knows' far more than his predecessors of even a few generations ago. Emotionally, however, the flyer of today lives through, struggles and 'feels' many of the same conflicts his elders worked to overcome. The flight surgeon can view his men in this perspective and his clinical assessments acquire stability thereby. Yet the physician is sobered that man still knows little of his inner self and his role in a social world.

THE ROLE OF THE FLIGHT SURGEON: The flight surgeon's medical sphere is global in proportions. His patients are for the most part young and exposed to special environmental hazards. The flight surgeon's duties within this operational frame of reference are to maintain and enhance the striking force of his unit, to conserve manpower, to prevent those adverse influences which will affect combat efficiency, and to prevent and cure disease and injury. As he becomes familiar with the military structure and with the flyers' environment he will be able by words and actions to interpret the demands of this environment to his flyers. He will recognize that adjustmental problems are highly prevalent and play a prominent role in the health and disease. The flight surgeon experiences the environment's impact upon himself as well as upon his flyers. As a trained observer, however, he must be alert to the nuances of this setting and avoid the human tendency to deny unpleasant reality factors. He cannot, in this respect, share the protective armor of denial available to his men. To do so would be to lose his skilled capacity to predict on-coming problems.

From a more strictly psychiatric standpoint, the flight surgeon will concern himself with techniques in the initial assessment of young men who are interested in military flying. His knowledge of successful flyers and of the demands of the flying environment will enable him to select those men who will blend themselves most satisfactorily with the Air Force setting. The flight surgeon will become familiar with acute emotional disturbances and will appreciate the importance of his prompt and personal intervention. In time he will learn to deal with the frequent and complicated psychosomatic problems of flying personnel, for example, obscure neurological symptom-complexes, disturbances of consciousness and of the special senses. Because of his strategic position within the operational setting he will make intelligent recommendations regarding the desired treatment and disposition of flyers with neuropsychiatric problems. His understanding of personality and emotional needs will find ready application to problems of flying safety, rescue and survival.

The flight surgeon will find many 'apparent' contrasts in his duties when he views his past experience in civilian medicine. He is a member of the flying group, yet is apart from it. He has obligations to the commander and the mission as well as to the flyers. He represents, first of all, a 'team physician.' His charges are basically a sound and healthy group. Much of his medical interest is preventive rather than strictly clinical. He is a special kind of medical expert with many of the qualities of a family physician. The scope of his practice is therefore broad and comprehensive since no appreciation of his flyer's health problems can be made without full recognition of the importance of personal and environmental influences.

He is accessible to his flyers. Much of his time is spent in talking with them. In this capacity he will not see his men as 'psychiatric studies' but will learn to anticipate and encourage the flyer who has "something on his mind." He will recognize the complexities of the patient-physician relationship and understand the impact his own actions have on the degree to which his patients seek his help. The flight surgeon needs an inquiring mind. Aviation today is constantly pushing back the barriers of the unknown. The flight surgeon is in the forefront in this, alert to anticipate new stresses, both physical and mental, which have not previously been appreciated. The flight surgeon will handle his men with sympathy and understanding growing out of intelligent self-understanding. He will maintain an objectivity which will be a constant challenge to him as a participant observer. His efforts in preventive psychiatry and supportive psychotherapy will bring gratifying results in prolonging the effective flying careers of his men. The flight surgeon, in fulfilling his duties, symbolizes a source of support consistent with the long term interests of the flyer and of the Air Force.

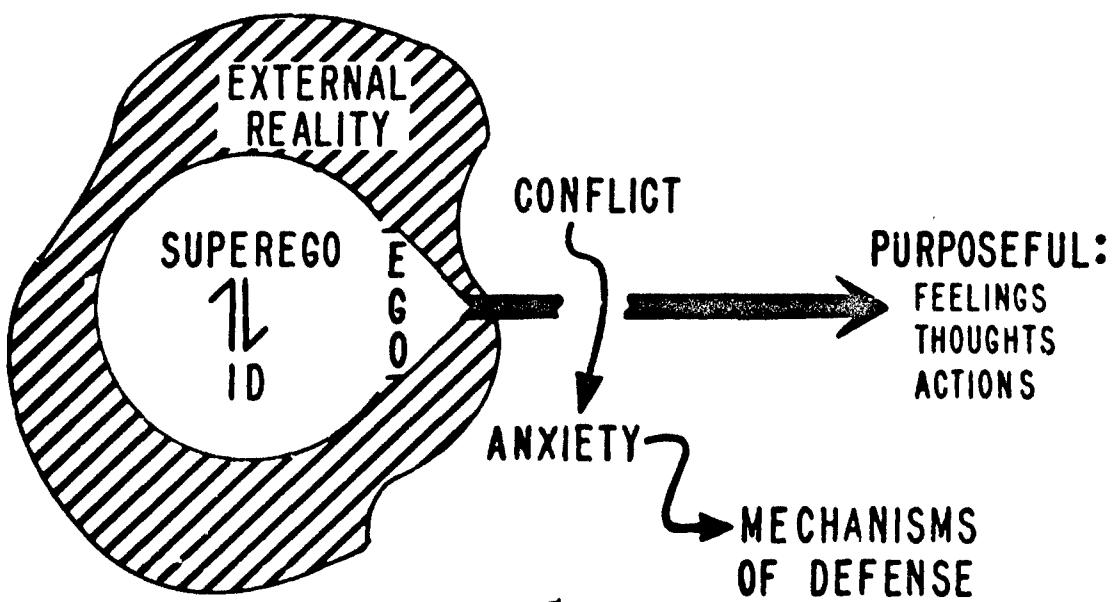
## CHAPTER II

### PERSONALITY DYNAMICS

It is essential to keep in mind certain basic principles in approaching the many psychological problems of aviation medicine, therefore this section will outline those current viewpoints of a theoretical nature which are felt to support clinical practice most effectively.(41,42,43) No attempt will be made to deal exhaustively with this area which is so well presented in many basic texts.

Personality is a dynamic entity possessing form, organization and content, all of which are subject to greater or less change depending upon many complex factors. Personality may be defined as the individual's integrated expression of his characteristic needs, goals, reaction patterns and modes of handling situations. As such, it is the culmination of forces some of which the human organism is incapable of altering, such as physical endowment, intelligence, age, sex and level of energy. People are subject to accidents, as well, some of which they may themselves provoke, but many of which they seem to be caught in as helpless bystanders. Environmental factors such as family, social and occupational factors, health, and wars, may also resist deliberate change, but here the outlook is more optimistic.

Psychiatry in recent years has directed attention toward dynamic forces within the individual from the moment of conception: psychic forces or drives which have a tremendous impact on the final product we refer to as personality. For practical purposes personality and its interactions can be represented schematically in the following manner:



The Ego is the harmonizer and mediator of the various forces within the personality. In the healthy person it successfully synchronizes these forces in a manner which satisfies the demands of the outside world, and still maintains within the inner self some degree of gratification and self-realization.

The Ego is the part of the personality with which military psychiatry is most concerned since acceptable performance is at a premium, and there is often little opportunity to explore the deeper problems. The terms Id and Superego refer respectively to those basic drives best represented in the needs of the infant, and to the conscience which develops as the individual absorbs parental and group standards of behavior.

To this as a framework is added the concept of the Unconscious. A major part of personality development takes place before the child has attained a level of conscious awareness. Those earliest occurrences in his life, the tensions of hunger or pain, the love, solicitude, anger or punishment which he experiences are not readily available for recall in adult life. But they do show themselves in dreams, hypnotic states, symptomatic acts, habits and attitudes. Free association and the various 'projective' tests are other ways of investigating the unconscious life of the individual.

A more detailed appreciation of the various stages of psycho-sexual development is a necessity if one is to understand the dynamics of deviant behavior. The term psycho-sexual refers to the investment of interest and energy which the growing personality places in various parts and functions of its body, and connotes sexuality in a very broad sense. The first stage is known as the oral phase during which the focus of interest of the infant is on feeding and receiving care and comfort from the outside world. The first interpersonal relationships are formed at this time and the child develops in his first two years to a realization that his universe also includes other people who, in addition to caring for him, make certain demands and are capable of withdrawing their solicitude. From this first stage of marked dependency the child progresses to the anal phase and learns that control of certain parts of his body, i.e., his anal and urethral sphincters, is possible. Not only is this control a source of marvel and satisfaction, but it bestows power to retaliate by withholding conformity to parental standards of excretory function. Aggressive feelings easily become involved in this situation; on the other hand there may be obsessive control, neatness and an orderly following-out of parental demands.

Beginning about age five the child discovers that there are not only other people, but that these people differ in their sexes. The first evidences of identification appear: the drive to be like someone else, to be like Daddy, to talk like him, copy his walk, to measure one's hands, feet, and genital organs for comparison. The little girl tends to enter this stage with the feeling that she is

incomplete in comparison with her brother, and this must be worked through emotionally as she comes to identify with her mother. It is during this genital stage that we sometimes see rather dramatically the phenomenon which Freud termed the Oedipus complex, in which the little boy in his urge to be like Daddy feels compelled to replace him and have Mother to himself. Here as in preceding psycho-sexual stages there are tremendous upsurges of feeling which run the gamut of emotions from openly expressed hate to overwhelming guilt. By this time the child has reached an age where some of his feelings may be recognized and remembered. The little girl also passes through a period when she must work through her strong feelings for and against each of her parents. These phases in psycho-sexual development are of extreme importance to later personality structure. The child during these successive stages is particularly susceptible to skillful or artless handling.

Following the first three phases which have been mentioned, there occurs a latent period during which the child is likely to be a marked conformist. His superego is now well established and functioning without deliberate reference to parental desires. The sexual interests of the genital stage are submerged. Each sex keeps to its own company, the little boy is obsessed with his strength and prowess, the little girl carries out many rituals patterned after her mother's daily routine. From about age twelve there begins the upsurge of puberty with the rekindling of many of the problems that preceded. Sexual drives are strong and are handled in the many tumultuous teen-age substitute activities. If experiences in earlier phases have been favorable, the individual emerges in adulthood with that admixture of traits which we recognize as maturity; he has struck a proper balance in his drive for independence as opposed to his need to seek support outside himself; he can give to others as well as receive; he has a realistic self-awareness and a healthy conscience; he can experience and utilize anger effectively.

As the individual advances through the various stages of psycho-sexual development, he encounters conflict along the way. In the analogy used by Freud, the personality is like an advancing army on foreign soil; with each battle and victory, small garrisons of troops must be left behind to secure conquered areas. Where the battle has been great, the losses are heavier and greater numbers of troops must be left behind for security. It is hoped that the army reaches its goal with a strong assault force still intact, however this is not always the case in personality development. The forces struggling toward maturity are sometimes so diluted by repetitive conflict that little of the main force ever reaches the other side. Rather, the conflict rages and progressive development cannot occur. Clinically one encounters patients who may be said to have become fixated at certain levels, as for example the oral character whose life is oriented toward receiving from others, or the anal character whose orientation is toward withholding from others, being stingy and stubborn, and simultaneously meticulous.

and disorderly in his personal habits. To carry the analogy still further, envision a task force which has emerged victorious from the field of battle but weakened by severe conflict at one point along the way. It is then possible that at some time in the future the strong defeated force may rise against the garrison which was left behind to maintain order. Then the main force must pull back to meet this renewed threat and we have a phenomenon known as regression, that is, a return to earlier modes of adjustment.

With this brief summary of personality development in mind, return now to the situation pictured in the diagram, and consider how these data assist in understanding and interpreting human behavior. As a guiding principle, it is helpful to regard all behavior as adaptive in nature, even though surface judgment may stamp it as clearly deviant. This is a useful attitude for the physician to take. From a therapeutic standpoint it is helpful to regard people as doing the best possible in the situation in which they find themselves. This applies equally well to the 'Back Ward' schizophrenic and to the antisocial personality.

What are these forces within the personality which the Ego must synthesize in harmonious expression? The basic drives of the Id demand gratification of dependency strivings, and would unleash the fury of aggression upon any frustrating object. There is the drive for power and the achievement of prestige and esteem. There is the drive for sexual gratification which may also be disguised hostility or dependency. Finally, of great importance in Aviation Psychiatry, there is the drive for self-preservation. In the peacetime world as we know it, rarely is there opportunity for the direct unchallenged expression of the basic drives here described. To be realized these drives must be distorted with the help of the Ego into some more socially acceptable type of gratification such as the vicarious satisfaction of invalidism, rough sports or the like. Because prohibitions against aggression are great in our culture, there is obvious conflict in many young men who must go forth in battle to destroy others. Yet this too can be a source of vicarious satisfaction where the deeper hostile drives are great and demand satisfaction. Whether these drives are expressed openly or in disguise or not at all, is a function of the strengths of the relative forces involved, that is, Ego strength, intensity of Id strivings, and finally the degree of development of the Superego. The Superego places a moral judgment on every thought and act. For the most part this is an automatic and unconscious process. In addition to its useful function as a conscience, the Superego can exert moral pressures of a disorganizing sort: the growing child with feelings of guilt about himself and his behavior is predisposed in later life toward self-destructive acts of greater or lesser magnitude.

The Superego, in a sense, can be 'bought off' or bribed in neurotic behavior. For example, the chronic invalid achieves satisfaction of his dependency strivings and keeps the 'approval' of the Superego, the bargain being that the individual must remain disabled.

To the Ego, finally, falls the role of mediator of these various processes to the end that some acceptable type of behavior results.

The interaction of these personality components introduces the concepts of conflict, anxiety and the psychic mechanisms of defense. The personality attempts to achieve, as does the body itself, a state of homoestasis. However, there is a constant bombardment of compelling stimuli upon the Ego emanating from within the personality and from the outside world. These stimuli must be dealt with in order to restore homeostasis. Many adjustments are made unconsciously. Some stimuli, however, are very intense or strike a sympathetic chord within the personality in terms of past strife. When this occurs there is conflict and from this emerges a signal: anxiety.

Anxiety is a sensation varying from uneasiness or discomfort to marked distress. It is all-pervasive, disquieting and threatening. Its presence is felt throughout the organism in physical as well as psychological manifestations. It is probably correct to say that anxiety motivates even 'routine' behavior, however, we are familiar with the more intense, subjectively experienced sensation of anxiety. Because anxiety is so extremely uncomfortable, the homeostatic forces of the personality are immediately called into action to remove it. It is of considerable importance that one bear in mind that this need not be a pathologic process. Anxiety may arise from an unmet need; the personality is impelled to make necessary and useful adjustments, e.g., studying before an examination. Therefore, up to a point, anxiety is valuable and beneficial. Perhaps one might term this degree of anxiety as vigilance, emphasizing its purposeful role in the psychic economy. It is this type of anxiety which prompts the flyer to check his equipment and his aircraft thoroughly, to master his procedures, and attend carefully when briefed for a mission.

Upon occasion, the stimuli are too intense or strike upon a predisposed area of the personality. Situations develop over which the Ego cannot preside in a normal or mature fashion. Consider the flyer whose fear of death or mutilation overwhelms his desire to fly with his comrades and do his share of hazardous duty. Moral judgments conflict with basic strivings for self-preservation. In the face of this, the Ego may struggle to a neurotic solution, a compromise in which the flyer cannot fly because of an hysterical blurring of vision. What has taken place is the utilization of a mechanism of Ego-defense, in this instance conversion.

There are many other unconscious mechanisms which the Ego employs to arrive at a neurotic compromise solution: the flyer might have repressed the conflict, and continued to fly in spite of his anxiety. He might project the conflict by accusing the flight leader of lacking courage. The mechanism of rationalization might have been employed if the flyer had said he didn't want to fly because he felt that the aircraft was not functioning properly in some way during ground check. Provocative behavior might be

involved if the officer became intoxicated and quarrelsome and caused himself to be grounded for disciplinary action. If a new and persuasive leader appears on the scene the pilot might return to flying his hazardous missions out of an unconscious desire to identify with this leader. In such a situation he may show a reaction-formation by flying recklessly in the face of his anxiety and fear. He may try to compensate for the questionable esteem in which his fellows hold him by being overly friendly and gregarious at the Officers' Mess. His anxiety about combat flying may be displaced so that he refuses to ride in a jeep because of the inherent danger, or he may utilize a charm, such as a rabbit's foot to symbolize his own omnipotence and freedom from harm. In this situation his anxiety may eventually become so overwhelming that he reports himself as a coward, consciously aware of the conflict that has been raging within him. His value judgments may dictate guilt and punishment, so that he demands court-martial. By the mechanism of undoing, he dreams at night of flying successfully in the combat situation which he can no longer tolerate. The hostility which he feels toward all cowards is now directed at himself through the mechanism of turning against oneself. He becomes regressed and behaves in a childlike, beseeching manner. At times he fantasies the day when he will return to fly with his comrades.

All of these are examples of psychic mechanisms of defense against anxiety. A few are desirable and a necessary component of successful combat flying, for example, identification. Sublimation is another healthy channeling of a conflict situation.

In summary, it is important in dealing with patients to consider their backgrounds for the many influences which have moulded the personality one sees. Behavior then becomes understandable and alerts the examiner to detect areas of strength and of weakness, as well as present conflicts and the ways those are being handled. In Aviation Psychiatry the medical officer deals with a highly select population and will have opportunity to witness at first hand the fact that the psychodynamic processes here outlined are a part of health as well as emotional illness. He will see that anxiety is a useful phenomenon if it does not progress to crippling intensity. Viewed in this context, normality in the flyer may be defined as the ability to carry out assigned duties in the face of conflict, anxiety and specific fears.

## CHAPTER III

### INTERVIEWING AND PERSONALITY EVALUATION

Recent years have witnessed a marked growth of interest in interviewing as a special medical technique. Psychoanalysis has exerted a particularly strong influence on the form in which the history is obtained and has thrown light on the subtle interplay of patient and physician. The technique of interviewing has come under close scrutiny, aided by such devices as tape recordings, films, one-way mirrors and the like.

The flight surgeon has an especially heavy investment in interviewing techniques because Aviation Medicine places such strong emphasis on verbal communication between doctor and patient. This section serves to highlight some of the important points on interviewing technique and is directed toward diagnostic interviewing. It should be emphasized however, that there is no sharp line which can be drawn between diagnostic and therapeutic interviewing. Indeed, every contact of patient and doctor should be looked upon as therapeutic in nature. The attitudes and suggestions set forth in this section will be elaborated upon in discussions of the Adaptability Rating for Military Aeronautics and of psychotherapy as such. For a comprehensive survey of the initial interview in psychiatric practice, the excellent work by Gill, Newman and Redlich (209) is recommended.

The aim of the physician in the first interview with his patient is to learn about the presenting problem. He seeks the noxious agent which caused the patient to be ill, questions how it has done so, and how it can be eliminated. He also assesses the patient's reaction to this noxious influence and encourages 'self-understanding.' Interviewing and personality evaluation are therefore primary aids to the physician in the task of comprehensive medical treatment.

The physician confronted with a psychoneurotic patient often finds it difficult to obtain a systematic history; the complaints are often numerous and vague. The essence of interviewing in this situation is in giving the patient an opportunity to unburden himself. What he volunteers is fully as important as his answers to specific questions. Up to a point, it is better to let the patient talk at will while the physician holds necessary questions in reserve. The patient should be allowed to cover the story of his illness in his own words. When he digresses, pertinent topics may be introduced to clarify the development of the symptomatology.

The history should bring into focus the facts of the present illness, the setting in which it occurs and the patient's attitude toward these facts in the frame of reference of his social and

family situation. The history should bear the patient's 'personal stamp': his personality, aspirations, work, ambitions and achievements; his economic situation, social activities, moral standards and needs.

The doctor is interested in the patient's emotional reactions to environmental stresses. The appraisal of these reactions is difficult largely because of two factors: the information sought is more subtle than that which the examiner seeks physically through inspection, palpation, percussion or auscultation; second, the technique involves the personal equation to a critical degree. Indeed, one may say that the personal interaction between examiner and examinee constitutes the most vital part of this examination. The examiner must do two things: he participates in the interview, and he observes at the same time. This personal interaction, or patient-physician relationship, is basic to all clinical medicine.

#### PATIENT-PHYSICIAN RELATIONSHIPS

The patient-physician relationship is a special one sanctioned by society and inherent in all medical procedures or transactions. The patient sees the physician as a person designated by tradition and by legal right to assume full responsibility for the necessary procedures involved in relieving his illness.

If the physician is to succeed in this role cast for him by the patient, he must maintain certain attitudes towards that patient. The latter's needs require someone who will accept him (i.e., be non-critical); who is interested in his personal problems, gives him an opportunity to express them, and tries to understand him so that the patient in turn can gain some understanding of himself.

On the initial contact, the need for a confident and secure relationship is paramount. The physician's approach in this stage is one of 'watchful expectancy.' To become secure in this relationship, the patient must have time to develop faith in the physician. This does not mean blind faith, but rather respect for what the physician is trying to accomplish and for his ability to understand and help.

One should not expect immediate confidence on the part of the patient. Patients who are emotionally disturbed are usually buffeted about by critical attitudes or previous inept handling, as well as by their own conflicts. These social and cultural judgments create defensive attitudes of which the patient may have little conscious recognition or control. Because of this defensiveness, or resistance, the physician strives to be non-threatening and willing to wait for the patient to develop the necessary confidence in him.

The interview situation is, therefore, an interpersonal experience and a special kind of relationship between two people. The

patient's feelings for the doctor are usually patterned after early relationships with the significant people (parents) of his environment in infancy and childhood. This is also true for the physician. Interpersonal difficulties on the part of the physician are to be understood in terms of these same early relationships.

The basic requirements for the physician might be stated as follows:

1. He must be able to listen -- he must be able to listen and gather information from another person without reacting along the lines of his own problems or experiences. This means he must be mature enough and have enough sources of satisfaction and security in his personal life that he does not utilize his patient for the pursuit of his own satisfaction or security. The beginning interviewer, may, because of his own anxiety in trying to do a good job, inhibit the patient by premature reassurance or interpretations, or requests for cooperation. A good rule to follow is 'when in doubt keep quiet and listen.'

2. He should not exploit the patient. He should not use the patient to build up his prestige or try to impress the patient with his skill. He should not display professional pomposness. Every patient is anxious and lacking in self-assurance. He senses insecurity in others and if he finds it in his doctor, it tends to increase his own insecurity. The doctor should not cultivate the patient's dependency and admiration. This is one of the things the neurotic patient is trying to overcome. He should not use the patient as a test tube for his skills. The doctor should not operate under the thesis that, "all my patients will be cured even if I have to force them." Along with this, the doctor should not use the patient as if he were 'clay in the hands of the builder.' He should not expect to mould him to his own image. The patient is not expected to accept the same methods of solution for his problems as those the doctor has employed in his personal life. The patient does not necessarily have to adopt the same code of ethics or the same personal values that the physician holds. The doctor is a superior person only by virtue of special training and experience, and not necessarily in any other way. The fact that a person needs psychiatric help in handling his emotional difficulties by no means constitutes any basic inferiority. The doctor, therefore, must not adopt an authoritarian or smug attitude toward his patient.

3. The doctor should adequately manage his own feelings. He should be able to recognize the patient's underlying discomfort, the unconscious elements in his defensiveness and his need to test out the physician. The doctor should be aware of the feelings and attitudes of the patient towards him and of the attempts the patient may make to manipulate or control him. He should realize that the patient may often so direct his verbal behavior towards the physician as to produce a desired response. The physician

should not be trapped into giving this response. The patient's anxiety may arouse anxiety in the doctor. As a consequence, he may not want to hear about the patient's problems and his anxiety-provoking experiences. He may tend to block the patient by giving premature reassurance when in actuality the doctor needs reassurance himself. Thus, he may block the patient's verbalizations and thwart investigation of important emotional material. Hostility on the part of the patient may be threatening to the doctor and arouse counter-hostility in him. He must be able to endure the patient's hostile outbursts. However, he should not overlook the patient's tendency to express hostile impulses beyond those limits permitted in our society.

#### AN OUTLINE OF PERSONALITY EVALUATION

The personality evaluation follows certain definite steps in arriving at the desired goal. Those steps are the following outline:

1. History of the present illness - the complaints and their setting.
2. Mental status examination: a cross sectional picture of the present behavioral abnormalities: behavior, appearance, flow of expression and thought, mood, thought content and intellectual endowments.
3. The historical background, the family and past personal history: the longitudinal behavior patterns of the patient.
4. A study of the dynamics of present problems by an investigation of the sources of conflict and the mechanisms of defense employed by the patient.
5. Diagnostic formulations: a summary of the pattern of psychic abnormality (descriptive diagnosis) including diagnostic category, manifestations, stress, predisposition and impairment.
6. Summary and recommendations: a total personality picture which contains the patient's assets or inherent strengths as well as his liabilities, suggested additional diagnostic procedures and plan of management.

Usually the interview begins with the presenting problem corresponding to the classic term 'chief complaint.' The presenting problem is likely to be a topic which provides the basis for conversation of mutual interest. But in addition, the doctor wants to know why the patient came to see him at this time. Did he come voluntarily? Was he sent by the Commanding Officer? Is he here because of administrative action, or is he here at the request of his family or relatives? One should secure necessary information from the patient such as name, rank, organization, age, marital status and the like.

The examiner should record verbatim the sentence or sentences in which the patient expresses his chief complaint. The manner in which this is stated generally indicates not only the chief complaint, but the patient's attitude toward it. A study of the development of this complaint from the time the trouble began is usually the next topic to arise. Here again the time the trouble began is sought; also the form of onset and the way the patient states it are important. If the patient is somewhat passive and does not verbalize easily, a simple expression of interest by the physician may be in order, such as "I would like to understand more about how your trouble developed" or, "Could you tell me more about this?" Frequently, the patient will talk freely about his symptoms or some neutral topic such as his work and should be allowed to do so until he feels secure with the doctor. Then other areas can be explored.

Once the physician has evidenced his interest and acceptance, the patient can verbalize his complaints in his own way. The examination and history can generally proceed in a fairly orderly fashion, however, one must beware of the inhibiting effect of stereotyped history-taking. When the patient brings up a topic, find out as much as possible about it, and other topics the patient may introduce. It must be remembered that the patient leads and the physician follows by encouraging him to express himself. As the patient talks spontaneously about his personal problems, many clues will be obtained about those areas in which the patient's problems lie. The patient may show this by 'protesting too much,' evading, repeating he's "not bothered."

The patient who is brought or sent to the physician would seem to have no apparent motivation for entering into a therapeutic relationship. This presents a special problem because such a relationship implies joint effort. It is obvious that we deal here with intense resistances which are difficult to penetrate. However, a patient's statement that he wants no help may be interpreted as a defense. Attempts should be made to interest the patient through acceptance of his need for such a defense. This may alter the situation sufficiently so that an evaluation of the patient's problems can be made and the patient's cooperation gained.

As the interview continues, the physician strives to maintain a productive flow of thought on the part of the patient. This is done by asking non-directive questions so that the patient can select his own response with a minimum of outside pressure. Leading questions or questions which can be answered either 'yes' or 'no' are avoided. To keep the patient talking one utilizes such questions as, "What do you mean," or employs words of interest and encouragement. When there is a lull in the conversation, it may be helpful to repeat or paraphrase the patient's last remark. For example, the patient may say, "I'm fed up, I can't stand working on the line any longer." The patient may then stop and the interviewer may repeat, "You can't work on the line any longer?" The

physician may say, "Tell me about it," or merely utter a sound, or change his position to demonstrate to the patient that he is interested in a particular part of the conversation. As much as possible he encourages the patient by exclamations that denote interest, repeating the patient's statement as a question, or revealing his acceptance by such statements as, "From what you tell me it sounds like you've been having a bad time of it." If resistance is encountered, the subject can be changed and the particular area kept in mind for future reference. It is wise, if an area is reached that is extremely painful, to avoid further explorations until the patient is ready for it. While one sticks as much as possible to the patient's words and seeks the 'why,' the interview should not become an inquisition.

After rapport is established and a history of the present illness or presenting problem is secured, one may go on to a more systematic case study or personality evaluation. Again slavish adherence to rigid routine is to be avoided. However, there should be some order and sequence to one's evaluation. Having explored what is on the patient's mind, then one should try to associate that with the past personal history. When introducing a topic such as family history or early childhood history, it might be prefaced by a statement to the effect, "Your present difficulties may have a relationship to other factors in your life; could you tell me something about your family history?"

The examiner should avoid getting into arguments with his patient. Some patients, especially those with a chronic, obscure illness or neurosis may be hostile towards any suggestion of an emotional factor in their illness. They may react to it by saying, "So you think I'm neurotic, do you?" or "You think it's all in my imagination." These remarks may at times be turned to advantage by asking the patient in turn, "What suggested that to you?" If a patient sticks on the issue that the physician thinks him neurotic, the examiner may say something like this, "I had not thought particularly that you were imagining things or neurotic but just that you are human. As a doctor I am of course concerned about your human interests and activities because these affect your health. It is a necessary part of my business to learn about such matters."

Some patients will talk much but remain on circumstantial and irrelevant areas. However, it must be remembered that the irrelevance may be lack of understanding on the part of the doctor. The inexperienced interviewer may wonder how he can get the facts for a respectable case record while letting the patient ramble. Actually, much of the information needed will come out spontaneously and opportunities will also arise for gleaning the necessary factual data.\*

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\*The flight surgeon may find a personal background questionnaire to be highly useful at this juncture. A sample of the SAM Dept. of Neuro-psychiatry Background Data Questionnaire will be provided at the student's request.

It should be recognized that the interview between the patient and physician may have meanings to the patient which run at cross-purposes to scientific evaluation and diagnosis. A compelling incentive to the patient to participate in interviews is the desire for an appreciative response. This desire for approval and understanding is sometimes a stronger motive than is the desire for complete truthfulness. The physician comes to expect a certain amount of unconscious distortion or falsification as an automatic human reaction which is not to be viewed with indignation.

When the interviewer senses the patient's urgent need to be understood, it is tempting to say hastily and reassuringly, "Yes, I understand" when in fact one does not understand. Such empty reassurance defeats its purpose and blocks further progress. Real understanding, useful to the patient, is best shown in appreciative listening with brief comments and questions geared closely and simply to the theme of the patient's preoccupations.

## Chapter IV

### PSYCHONEUROTIC DISORDERS

The chapter on personality dynamics has presented a schematic diagram of the structure of the personality which serves as a basis for further understanding of psychological disturbances of all kinds. As has been noted, a state of equilibrium normally exists among the components of the personality, and this is reflected in a functional, adaptive relationship to the outside world.

Conflict may arise at any time within the personality, in which outside demands may or may not participate. With the occurrence of conflict, anxiety arises. This may be an unconscious process, or the individual may be keenly aware of his discomfort, if not the actual conflictual situation itself. The personality utilizes all necessary assets to bind this anxiety at the earliest possible moment, employing in the process many of the mechanisms of defense previously outlined.

One can readily envision various conflictual situations which disturb the dynamic equilibrium of the personality and its relations to the outside world: the gratification of the id-component, for example, in the form of excessive dependency demands upon others, may be a source of conflict. Another possibility might be the 'hypertrophied Superego,' or guilty conscience, bringing the personality into conflict because of constant demands for unwarranted punishment. A third would be a situation readily seen in military aviation: the demand of society ('external reality') that an airman risk his life in hazardous duties.

As a working definition psychoneuroses may be regarded as those disorders in which 'anxiety' is a chief characteristic, directly felt and expressed or automatically controlled by various defenses. A certain degree of psychoneurosis is normal in all individuals. Building upon the basic formula for the formation of psychoneurotic symptoms, one can proceed to the various reaction types or clinical pictures which emerge, depending upon the predominant mechanisms of defense employed by the personality.

#### Anxiety Reaction:

This is characterized by a dominant mood of uneasiness, apprehension, and susceptibility to alarm in inappropriate situations. The anxiety is diffuse and not restricted to definite situations or objects. The subject may exhibit a 'worried look,' he may show skeletal tension with stiffness and tremors, bladder and bowel disturbances and excessive sweating. A wide variety of smooth muscle and gland effects may be noted. Anxiety reactions are by far the

commonest of the clinical psychoneuroses which the flight surgeon will encounter.

The flying environment is fraught with dangers and capable of provoking much anxiety. Observers have found that one can predict fairly accurately certain periods in the flyer's career when he is most likely to experience anxiety, and when the greatest danger of decompensation is present. These periods are: first, when he begins to fly combat aircraft; second, during the initial period of adjustment within the combat theater; third, and particularly stressful, is the occurrence of accidents or injuries during the combat tour, either to the flyer or his comrades. Finally, there is a period of anxiety during the last few missions before rotation from the combat theater.

It cannot be emphasized too strongly that anxiety which is neither too intense nor too prolonged can serve a useful purpose in driving the subject to greater efforts and greater caution.

#### 'Traumatic Neurosis':

This is a term not in use in the Armed Forces nomenclature, but it is employed in common medical parlance so often that it bears some discussion. As the term implies, this is a psychoneurosis arising out of an acute traumatizing situation. The clinical picture may be any one of the psychoneurotic reaction types, although diffuse anxiety and phobic symptoms are most common. From a psychodynamic standpoint, the Ego is so overwhelmed by the acute trauma that it crumbled under the impact. Marked regression to a helpless state ensues, and in the post-trauma period one sees a compulsion to repeat the experience in dreams or dissociative states. The 'traumatic neurosis' tends to be short-lived, and when it persists in later years it is usually because of an underlying character defect and/or inadequate treatment at the time of the trauma.

#### Dissociative Reaction:

In this reaction the conflict is so great, or the Ego strength is so weak, that for a usually brief period behavior occurs which is not under conscious control. The acute anxiety overwhelms and temporarily governs the individual, and the picture resembles an acute psychosis. As a result there may occur fugue states, amnesia, dream states, somnambulism, aimless running or freezing. Generally, frank dissociative phenomena occur in young, suggestible and immature individuals.

A situation may arise in flight which cannot be precisely classed as a true dissociative reaction. It results from being overly attentive to the instruments of flight. This, coupled with the hypnotic effect of the drone of the engines, the monotony of the radio beam and other sounds, causes the pilot to become

inattentive to such factors as the attitude and orientation of the aircraft. This phenomenon is sometimes referred to as 'autohypnosis'.

A similar state has been described as 'pilot fascination.' In this condition, the flyer becomes so absorbed in his radar scope as he homes-in on his target that he fails to pull out in time and a collision occurs. The same situation has been thought to occur in gunnery practice, with the flyer ramming his target or pulling out of his dive too late to clear the ground ('target fixation').

#### Conversion Reaction:

This reaction is closely related to the dissociative reaction. Instead of a gross disturbance of behavior, however, the anxiety is bound down in disabling symptoms of predisposed or injured parts of the body usually under voluntary control. Common sites are the musculoskeletal system and, particularly in flyers, the organs of special sense. If the conversion mechanism is successful, awareness of the provoking stimulus is lacking, and the patient shows little anxiety or outward concern about his disability. The flight surgeon should consider a conversion reaction whenever he encounters blurring of vision, depth perception difficulties, vertigo, headaches, deafness or pain in the ears.

#### Phobic Reaction:

The importance of the phobic reaction in military aviation is emphasized by the fact that, second only to battle wounds, this was the greatest single cause for the elimination of flyers following their training and before they entered combat in World War II.

In the phobia, anxiety is displaced onto some specific, nameable behavior, situation or object which can be brought under voluntary control of the patient. The cause of the fear is not known by the patient and the fear itself is often regarded as foolish and irrational. Common examples are fear of venereal disease, dirt, closed places, open places, some animal, etc. In military life, other specific fears are observed such as irrational fear of certain weapons, combat noise, airplanes, and the like. Although this last type of phobia may appear rational on the surface, a closer examination reveals its irrational quality, e.g., phobia for flying at relatively safe altitudes or over safe water areas. In the phobia, the patient can control his anxiety if he avoids the feared object or situation.

The character structure of the phobic individual blends with the obsessive-compulsive and in each are found a rigid, relatively unmodifiable set of Ego-defenses. Phobia-formation tends to be more and more all-inclusive, so that the pilot who develops a phobia for aircraft may soon experience the same fears toward other objects to the point of severe restriction of his activities.

### Obsessive-Compulsive Reaction:

Characteristic of this reaction pattern is a repetitious preoccupation and inability to 'let go' of a troublesome thought or conflict. The subject displays conspicuous difficulty in making decisions and undue concern with orderliness, perfectionism and ritual. There is often great preoccupation with pleasing and seeking approval of authority figures, and attendant guilt over failure in this. The obsessive-compulsive patient is extremely cautious and alters his attitudes and behavior slowly. Extreme striving or overactivity is often exhibited. There may be associated migraine headaches, arterial hypertension, peptic ulcer and ulcerative colitis. Also included are such reactions as compulsive touching, counting ceremonials, handwashing and recurring thoughts. The subject may also exhibit addiction to a variety of medicinal or other agents or routines.

When these various symptoms become incapacitating and lead the subject to seek medical help, he may be said to suffer from an obsessive-compulsive reaction. More often, people show any number of these traits throughout their lives, and one might more correctly refer to them as obsessive-compulsive characters. In fact, our modern culture, our educational system, the military organization, and good flying discipline all place a premium on a certain degree of compulsivity.

### Neurotic Depressive Reaction:

This is characterized by feelings of dejection and hopelessness, with poor sleep and appetite, and weight loss. There may be an associated agitation at times, but the picture is usually one of slowing of thought and action. The differentiation from the psychotic depressive reaction is not always clear-cut, however certain features offer a guide. For example, the neurotic depressive reaction is usually related to some readily identifiable current situation such as the loss of a loved one or a possession. Psychotic depressive reactions tend to be recurrent, and unrelated to exogenous factors. The psychomotor slowing is more profound and there may be delusional experiences of a self-destructive or accusatory nature.

From a psychodynamic standpoint, the neurotic depressive reaction can usually be shown to depend upon the loss of some person or object toward which the patient had strong mixed feelings. With the loss, the patient's negative feelings toward the object cause guilt and shame, and a resulting need for punishment. Depression, when viewed in this light, becomes 'anger turned inward.'

Such reactions are seen not infrequently among combat flyers who see their buddies lost one by one. Their strong group ties do not permit them to express consciously the feeling of relief that it was the other fellow who was killed, not themselves. This

feeling gives rise to a conviction that they should punish themselves for still being alive.

In summary, psychoneuroses become understandable when the flight surgeon learns to recognize first, the underlying conflict; second, the anxiety which is generated by the conflict; and third, the mechanisms which the patient employs to bind the anxiety.

## CHAPTER V

### PSYCHOSOMATIC PROBLEMS

Psychosomatic medicine should be regarded as a point of view, or an approach to the practice of medicine which views all clinical problems in a comprehensive fashion. As such, it is not a new development and its history goes back at least as far as the time of Hippocrates. In this era of medical specialization, we often must remind ourselves of psychological factors because of the danger of becoming buried in the avalanche of discoveries and developments in other areas of medicine.

This chapter will review the various diagnostic categories in the Air Force nomenclature, which comprise the so-called psychosomatic problems. The terminology which is employed is the somatization reaction and from a classification standpoint, these reaction types are included among the psychoneurotic disorders.

The chapters on personality dynamics and psychoneuroses have presented a basic formula for understanding personality disorders. The psychoneurotic symptom represents a compromise solution to a situation of conflict, and the anxiety is dealt with by one or more mechanisms. This formula can be extended in like manner to the clinical entities termed the somatization reactions.

In the somatization reactions, no satisfactory solution occurs, the anxiety is repressed and channelled into various bodily organ systems. The organ systems which are bombarded in this way may with time begin to undergo structural changes. This formulation is readily understandable if one remembers that all emotion has its physical reverberation, whether it be fear, rage, love or hate. These emotions are usually discharged although the degree and mode of discharge encounter many prohibitions in our culture, whether at home or on the battlefield. Obviously, if they are not discharged, tension accumulates and is manifested in bodily symptoms. The psychological disturbance underlying the physical symptoms is deeply repressed and not readily recognized.

Somatization reactions should be distinguished from conversion reactions. Points of differentiation are, first: the conversion reaction represents an attempted solution to a well-defined conflict through the voluntary nervous system and the special senses. There may be a temporarily adequate solution in the sense that anxiety is bound and the patient emotionally indifferent. There is no such solution in the somatization reaction; rather the unsolved conflict continues and, although repressed, results in exaggerated physical concomitants of the initiating emotional state, e.g., repressed anger leading to arterial hypertension.

Significance of Psychosomatic Problems in Aviation Medicine.  
The psychosomatic diseases, especially certain types of cardiovascular disease and hypertension, include some of the most costly and stubborn illnesses with which medicine is confronted. The flying environment places a great investment in stability of performance under varying conditions, and such stability often exacts its toll in the form of a somatization reaction. Were one to eliminate men who showed the psychological tendencies toward, or early signs of a somatization reaction, much valuable manpower would be lost. It is the flight surgeon's task, therefore, to recognize the frequency and pattern of these reactions and to handle with therapeutic skill these patients who complain so little.

It is a matter of everyday medical knowledge that psychosomatic disorders are a common occurrence in civilian practice. Lewis(104) has compiled a group of 2038 medical patients of whom 29% suffered from illnesses due in their entirety to psychological factors. An additional 18% gave evidence of both psychic and somatic factors. If this is the incidence in civilian life, one might well expect an even higher occurrence in the Air Force because of the rapidly shifting tempo of life, the lack of interpersonal and environmental stability, the regimentation and so forth. Some interesting studies have been conducted among military hospital populations in this regard, and there is evidence of a surprisingly high incidence of personality maladjustment among medical patients. These maladjustments bore directly upon the need for, and length of hospitalization.

Hunt, Wittson and Hunt(279) followed a group of 719 seamen who had been referred to a Naval Training Center Psychiatric Unit in 1942. After staff study, 91 of these subjects were placed in a control group and regarded as having been erroneously referred. This group, along with the 628 cases who were felt to have significant personality difficulties, were all returned to duty and followed over a three year period. All cases received an honorable discharge. Of the 628 maladjusted individuals, 120 were considered psychoneurotic, 97 schizoid, 102 alcoholic, 121 of low intelligence, and 97 warranted the term asocial psychopaths. During their tours of duty, only 4% of the control group required hospitalization. This is compared with hospitalization rates of 17% for the psychoneurotics, 24% for the schizoids, 27% for the alcoholics, 24% for the mentally dull and 20% for the asocial psychopaths. Of even greater interest is the fact that in only one case was the hospitalization directly connected with the neuropsychiatric diagnosis involved. Rather, these subjects were treated for the large mass of physical complaints existing with and arising from precarious psychological adjustment. Further, in this marginal group, the time lost because of AWOL was thirteen times greater.

Brodman(85) has studied the relationship of personality disturbances to duration of convalescence from acute respiratory infections in military hospitals. It was found in one hospital that among 737 white patients the average duration of hospitalization was

prolonged by as much as 80% with an average rate of 15% in those with personality disturbances. The results were consistent among the hospitals studied and the overall prolongation average was 28% in a total of 1187 patients. The attitude of the attending medical officer was found to be of considerable importance. It was inferred that the portion of the population hospitalized for acute respiratory infections has a higher incidence of personality disturbances than that portion not hospitalized. In another study(27) by Brodman of hospitalized medical and surgical patients, it was found that there was a greater neurotic potential in the younger, and lower ranking patients, and that, again, the greater the neurotic potential, the longer the hospital stay.

From an Aviation Medicine standpoint, Grinker and Spiegel compiled a series of 330 combat flyers in World War II(242) who suffered from psychosomatic disorders. The large majority (46.6%) manifested gastrointestinal symptoms, and the remainder were divided in the following fashion: cardiac, 14.4%; dermatological, 12%; musculoskeletal, 11.5%; urological, 6.3%; headaches and vertigo, 5.7%; hypertension, 2.3%; and respiratory, 1.1%. Although no large series of cases has been reported for the Korean War, the preponderance of somatization reactions in flyers has involved the gastrointestinal system.

The following are brief descriptions of various types of somatization reactions:

1. Psychogenic Cardiovascular Reaction: This subcategory includes most cases of such established types of cardiovascular disorder as paroxysmal tachycardia, pseudoangina pectoris, and some types of hypertension. Neurocirculatory asthenia has now been redefined as an 'anxiety reaction'; similar clinical pictures, without subjective anxiety, may be classified as psychogenic cardiovascular reaction.

2. Psychogenic Gastrointestinal Reaction: Included in this category is the peptic-ulcer-like reaction, chronic gastritis, mucous colitis, constipation, hyperacidity, pylorospasm, heartburn, irritable colon, and so forth.

These psychogenic disorders, particularly dyspepsia, were a common occurrence in World War II, and Halsted(95), in his experiences with the Fifth Army has reported on a series of 193 consecutive cases of chronic epigastric distress who were completely studied. Only 4% of this group were actually found to have ulcer, and several interesting comparisons were made between the ulcer and non-ulcer groups: from a personality standpoint the differences were so striking that a correct diagnosis could be made on the history alone in 90%. The ulcer patient was restless, ambitious, anxious to succeed and to prove leadership; he showed traits of self-sufficiency and was usually an excellent soldier. He tended to conceal, rather than use his symptoms. The patient with func-

tional dyspepsia, on the other hand, was observed to be typically passive-submissive, and gave a past history of a broken home and neurotic traits. Whereas 80% of the dyspepsia patients were considered psychoneurotic, only 6% of the ulcer group had disability resulting from psychoneurosis. The dyspepsia patient complained of diffuse epigastric distress occurring while eating or immediately after; there frequently was vomiting of small amounts but weight loss was infrequent. Other complaints were of insomnia, lightheadedness, fatigue, headache and food fussiness. The ulcer patient, on the other hand, showed rapid relief when hospitalized. 72% had a typical food-pain-food-relief sequence, vomiting was rare. Usually there were no complaints or perhaps localized epigastric pain. Of course it should be emphasized that these were highly select combat soldiers, and the admixture of psychoneurotic symptoms in the average civilian ulcer patient might be considerably greater. Rosen(113) has also reported findings of a similar nature.

3. Psychogenic Respiratory Reaction: This subcategory includes cases of bronchial spasm, hyperventilation, and sighing respirations which are of emotional origin. It also includes induced tetany. Some cases of chronic, recurrent rhinitis may also be shown to fall into this group. Hyperventilation syndrome has been implicated as a possible cause for unexplained jet crashes. It is of considerable importance for the flight surgeon to explain this phenomenon as part of the physiological training of aircREW members. Typical complaints are dizziness, weakness, numbness of the hands, dimming of vision and peri-oral pallor. It should be emphasized that hyperventilation is a symptom and attention should be directed toward underlying causes.

4. Psychogenic Genito-Urinary Reaction: Representative examples are bladder hyperfunction with urinary frequency and urgency; urinary retention, pruritus ani, impotence and enuresis.

A condition which gives the medical officer particular difficulty is chronic non-specific urethritis. Such a condition is sometimes initiated by venereal disease, but frequently not. In periods when the United States has large forces stationed overseas, the problems of venereal disease and of sexual misbehavior in the absence of home ties become very real. Ross(114) reports on this condition in Canadian soldiers in Europe after World War II. The most consistent findings included guilt over sexual acting-out, and an effort to refrain from promiscuity in the face of temptation. The condition was likened to chronic salivation in a starved individual, with food just out of reach. Ross found many admixtures of psychoneurotic and personality disorders in his subjects, however, many of them showed excessive conscientiousness, excessive shyness, a tendency to drift along the line of least resistance, hypochondriasis and excessive dependency.

The acute stress of combat flying is capable of producing a surprising degree of emotional albuminuria, according to Ahronheim (77) who has reported on this finding in the routine urinalyses of

388 combat flyers before, during and after World War II missions. The amount of albumin excreted under emotional tension fluctuated greatly, but followed a pattern which seemed to be characteristic for the individual.

5. Psychogenic Skin Reaction: This includes the so-called neurodermatoses, dermographia, alopecia, urticaria, edema, excessive sweating or dryness, cold or hot hands or feet, or itching skin when involving major emotional factors. The stomach is often spoken of as the mirror of the emotions. In the same sense, the skin is the very reactive shell between the personality and the outside world. Cormia(89) has analyzed the psychosomatic factors in dermatoses, and has found that the temptation to employ 'organ language' is particularly great in this field, for example: worry (picking); anxiety (pruritus, sweating); fear and anger (urticaria); guilt and shame (blushing and rosacea); hostility, self-punishment and eroticism (dermatitis factitia), and sexual pleasure (cutaneous masturbation).

Dermatoses of psychogenic origin are frequently accompanied by severe, intractable pruritus; symptoms may be disproportionately greater than the objective signs of disease. Other things to look for are causal relationships in the environment, although the lesions may begin without obvious cause. There may be a history of antecedent trauma or of a benign, ordinarily self-limited dermatosis. Neurotic excoriations and factitial lesions should be thought of as providing important clues in some cases.

6. Psychogenic Musculoskeletal Reaction: This includes such complaints as tension headache, neckache, backache, camptocormia ('bent back'), localized cramps such as writer's cramp, joint and muscle pains, tremors and other incoordinations, stiffness and awkwardness of movement, motor tics and habit spasms.

Headache is such a frequent complaint, especially in psychiatry but in all branches of medicine, that all practitioners should have a thorough understanding of the mechanisms involved. The reader is especially referred to the work published by Wolff. (165)

Headache may be a symptom of inflammation of intracranial tissue, generalized fever, septicemia, an intracranial tumor, arteritis, and many other rarer conditions. But more than 95% of all headaches, in the United States, and still more in the Air Force, are associated with chronic contraction of muscles in the scalp, face, and neck or periodic initial constriction followed by wide dilatation of the extracranial and intracranial blood vessels. The vascular and muscle-contraction factors may at times co-exist to produce or perpetuate the headache.

When the flight surgeon is convinced that a headache does not arise from a condition requiring surgical or other specific therapy, he is the man best suited to treat it. Emotional problems

are almost always the cause when headache presents in the absence of other findings. He can give psychotherapy and drug therapy simultaneously, for although the vascular headache is amenable to ergot therapy, (which should be used for acute attacks) patients get long-term relief from repeated opportunities to discuss their problems with a sympathetic listener.

The flight surgeon's time is well-invested in these patients, because they are the conscientious, hardworking, self-driving, undemanding individuals who make dependable pilots and reliable, effective officers. Relieved of their distressing symptoms, they become even more efficient. Supportive therapeutic interviews are very successful in relieving their symptoms.

The typical clinical description of the vascular type headache, which includes migraine, is as follows:

- a. The pain appears in acute attacks, is throbbing at the onset and later becomes steady; its distribution is usually unilateral at least in the early stages; its intensity reaches a peak within a few hours and then gradually subsides.
- b. There may be associated labyrinth disturbance, anorexia, vomiting, and transient visual distortions, such as blurred vision, scotomata or hemianopsia. Tender cranial arteries may be felt in the area of pain. Irritability, photophobia, constipation or diarrhea, secondary muscle contraction, acute unilateral conjunctivitis, or pupillary dilatation may appear 24 hours or more after the onset of headache.
- c. The patient has had headache for many years, his family has a history of similar headaches, and his attacks seem associated with the fatigue of driving for some particular goal.
- d. Early intramuscular injection of 0.25 to 0.5 mg of ergotoneine tartrate will cause elimination of the headache. When such injection does produce relief of symptoms head pain is almost certainly vascular in origin.

Muscle-contraction headaches are characteristically described as follows:

- a. The pain is one of tightness and vise-like pressure.
- b. The duration may be short, and the pain may shift from one site to another.
- c. The pain changes frequently in quality and intensity.

- d. The pain may diminish considerably following muscle relaxation measures such as heat, massage, and intravenous barbiturates.
- e. The pain is usually located in the occipital region.
- f. There may be associated tinnitus and vertigo.
- g. Although usually transitory, the pain can persist in one spot for days, weeks, months and even years.

Migraine is a disqualifying defect in an applicant for a commission or for flying training if it occurs repeatedly and is of sufficient intensity to incapacitate the examinee temporarily for his usual pursuits or to require regular medication. These same standards apply to the trained flyer. The scotomata associated with migraine headaches are a special occurrence which indicate the need for added precaution when considering a man's fitness for flying.

Backache is a constant problem in all military medicine, and is a complaint often seen among flyers in older age groups. Dodge has reported a study of backache in the Far East Command during the Korean War. (90) One can appreciate the emotional investment in this symptom if one recalls that one of the prominent conversational expressions during this period was "my poor aching back." In Dodge's series of 122 patients with backache there was definite evidence of organic disease in 38.5%. Spina bifida occulta, and sacralization of the fifth lumbar vertebra but excluding spondylolisthesis were not considered to be organic disease. 19% of the organic group had a typical history and findings of herniated nucleus pulposis. The criteria for this diagnosis were rigid and included localized muscular weakness, especially the glutei and long extensor of the toe, diminution or loss of a tendon reflex, sensory changes consistent with a dermatome distribution, and elevation of the cerebrospinal fluid protein. Other helpful but less reliable signs were flattening of lumbar lordosis, scoliosis, limited straight-leg raising, increased radicular pain on jugular compression, tenderness over the sciatic nerve and narrowing of the appropriate vertebral interspace.

There was no disease found in 54.2% of Dodge's patients. 25% of these gave a history of trauma or strain, often followed immediately by gross conversion symptoms. The histories tended to be dramatic but with a paucity of valid objective signs. The neurologic findings were incongruous and the patients showed marked withdrawal on light touch. Externally, there was no evidence of trauma; occasionally paravertebral muscular spasm was observed, and although the patient was unable to accomplish straight leg raising from a supine position, nevertheless this capability was noted when sitting down. There was no improvement with bed rest, and physiotherapy provoked striking anxiety.

Among those who gave no history of antecedent trauma, there was often a history of recurrent backache and of repeated hospitalizations. These patients typically verbalized many diagnostic terms. There was little overt anxiety. The unwary examiner tended to consider seriously the possibility of herniated disk in the face of such fixed symptomatology.

Short has reported on 309 patients who were evaluated for arthritis in the Mediterranean Theater of Operations in World War II. (116) 16.5% of the group were felt to have psychogenic rheumatism. Among them the overall age was younger than those with actual arthritis, and in the background were such factors as previous joint injury or disease, family history of rheumatism, and present secondary gain by removal from combat. Psychoneurotic symptoms were also noted coincidentally. A positive diagnosis of arthralgia -- as opposed to psychogenic rheumatism -- was based on 'morning stiffness,' increase in pain after sitting or lying in one position, aggravation by cold, weather changes and dampness, temporary relief from heat, moderate exercise and aspirin, and the presence of multiple areas of involvement especially in the lower extremities. 90% of Short's patients returned to some form of duty.

7. Psychogenic Asthenic Reaction: General fatigue is the predominating complaint in such reactions, and there may be associated visceral complaints. Present weakness and fatigue may indicate a physiological neuro-endocrine residue of previous anxiety and not necessarily an active psychological conflict. The term includes many cases formerly termed 'neurasthenia.' In some instances, an asthenic reaction may represent a conversion reaction; if so, it should be so classified, with asthenia as a manifestation. In other instances it may be a manifestation of an anxiety reaction and should be recorded as such.

Shands (115) has reported on a series of 70 civilian patients who complained of fatigue states. These patients invariably felt worse in the morning. They felt a strong desire to lie down but when able to do so were unable to sleep. The fatigue was specific for certain activities. A psychiatric diagnosis was made in every case, and none complained of fatigue without some other neurotic symptom, especially anxiety, depression or physical complaints. There was no marked evidence of muscular weakness. A careful history revealed specific relationships of fatigue to significant events in the lives of these patients. Especially cited were grief reactions, surgical procedures and sexual situations.

8. Psychogenic Reactions Affecting Other Systems: The military nomenclature does not intend that the reactions listed previously be interpreted as necessarily including all possible reactions of this sort. If analogous additional reactions are recorded as diagnoses, they should be clearly identified as psychogenic. The diagnosis should specify the system involved and the particular symptomatic expressions. For the flight surgeon, certain ocular disorders may be

encountered which may well fall into this category more appropriately than to consider them as conversion reactions. Where the emotional factors in glaucoma appear outstanding, this may be true. The personality difficulties of patients with primary glaucoma are well documented in the literature(91,94). Amaurosis fugax, or fleeting dimness of vision, ciliary spasm, central angiospastic retinopathy and ocular Raynaud's phenomenon are conditions reported by Harrington(97) as accompanied by significant emotional disturbances.

9. Hypochondriacal Reaction: This is an obsessive preoccupation with the state of health or with the condition of any one or group of the body organs or systems. The condition may be very mild, and a close relationship is often found to the obsessive compulsive personality. A mood disturbance is not always prominent but when evident, depression is most characteristic. In the past history one may find much parental concern about health in childhood, constant reminders of lack of robustness and long convalescences. Also there may be well-filled medicine cabinets.

The deeper, more rigid and refractory cases of hypochondriasis show many resemblances to schizophrenia. Such patients who are sometimes referred to as 'pseudoneurotic' schizophrenics have withdrawn into a life of preoccupation with bodily functions. Emotional blunting and verbalizations bordering on somatic delusions are characteristic. Their symptoms are of great value to their precarious psychologic balance, and should be treated with respect by the perceiving medical officer. This type of hypochondriasis, however, is relatively uncommon in the military environment, especially among flying personnel. Nevertheless, hypochondriasis in a much milder form is a frequent accompaniment of other psychoneurotic pictures. Hypochondriacal preoccupation was seen rather frequently in flyers in Korea during the 'let-down' period after the completion of their tour of missions and before rotating back home.

#### MOTION SICKNESS

Airsickness may be defined as a form of motion sickness which is principally the result of accelerations, or illusions of acceleration, during aircraft flight. The usual order of symptoms is an epigastric awareness gradually progressing to nausea, salivation, pallor, sweating and yawning. The individual loses his feeling of well-being and if the stimulus continues, he feels so wretched that volition disappears, any constructive task seems impossible and vomiting occurs. Headache and vertigo may be present. The act of vomiting may temporarily relieve symptoms, but another cycle may occur. If prolonged, the patient experiences overwhelming mental and physical fatigue and it may be several hours or days following the ordeal before he begins to feel well again.

Airsickness is a perennial problem among air passengers. The flight surgeon, however, will be most concerned with his student flyers who are new to the flying situation. Trained flyers occasionally present symptoms of airsickness, but their numbers are few.

Etiology. Basic to all motion sickness is the failure of the body to adjust to changing accelerations in space. In addition, the flying situation enhances the human's instinctual fear of falling and his apprehension produced by being at, or looking down from heights. Such a situation evokes primitive self-preservatory responses which may disturb the total body homeostasis. Our present ignorance leads us to divide motion sickness clinically into two broad categories. True airsickness includes those cases where no demonstrable predisposition to the disorder can be determined. Such cases appear stable emotionally and in good physical health. Clarification of this disorder awaits further research. Thorner(162) has studied the cortical activity of airsick personnel and reported electroencephalographic tracings which differed markedly from those of a corresponding group of healthy adults in the general population.

More readily understood are cases of symptomatic airsickness. In these, the capacity to adjust to the accelerations of flight are lowered by specific, demonstrable causes. Such causes may include fatigue, vestibular hypersensitivity, visual defects, organic disease of the gastrointestinal tract, or of the middle ear, sinuses and eustachian tubes. Airsickness may be the first symptom of an acute systemic illness such as pneumonia, hepatitis, and the like, and as such is coincidental. Other factors include dietary indiscretions, overindulgence in alcohol or intense heat. When a newcomer to a flying training program is subjected to too rapid a pace, to poorly timed acrobatics, etc., his over-reaction may properly be considered symptomatic. From a psychological standpoint airsickness may be due to an anxiety reaction or to some other diagnosable psychiatric illness. Loss of motivation in the absence of psychiatric illness also may express itself in airsickness.

Role of Psychological Factors in Airsickness. In a condition such as motion sickness which involves the organism as a whole, often in a strikingly dramatic fashion, it would be naive to consider psychological factors without emphasizing that these are considered in a very broad frame of reference and include emotions, nerve pathways and basic neurophysiological phenomena.

The psychogenic etiology of motion sickness has been heralded from time immemorial to the extent, at times, of being overemphasized. That psychological factors are of great importance in lowering resistance, there can be no doubt, but understanding of etiology risks serious error in omitting comprehensive inclusion of the soma as well as the psyche.

Conn(144) has studied carsickness among children who were referred to a psychiatric consultation clinic. The carsick children

were compared with other psychiatrically ill children who did not suffer from carsickness. Reference to this study in the literature has unfortunately highlighted the appreciable emotional disturbances among the carsick children, implying that the control group was not similarly impaired. Of particular interest was the over-reaction of the carsick children to play therapy situations in which toy cars and people were brought together. This might suggest that true motion sickness in later life might have its basis in some deeply repressed early psychic conflict which has not otherwise interfered with successful adjustment.

Bond(140,141) and Hemingway(149,150,151,152) have reported psychiatric studies of subjects made sick by swinging, or who were in the process of elimination from flying training because of airsickness. Both found a high incidence of emotional maladjustment, although all those who were maladjusted were not made sick by the swing. Unfortunately these evaluations were for the most part uncontrolled and the criteria for maladjustment were therefore questionable.

Much of the data which has influenced observers to look upon motion sickness as a psychological matter rests upon uncontrolled but rather persuasive and general observations. For example:

1. Placeboes are often effective in preventing motion sickness.
2. Disagreeable sights and odors often serve as a catalyst to set off airsickness among a group of passengers, e.g., the sight of one of the other passengers becoming ill.
3. Individuals who have been conditioned by previous bouts of airsickness will sometimes become sick while sitting in the aircraft on the ground.
4. People are less apt to become airsick if they can be distracted in some way. Indeed, in times of emergency, airsick individuals can overcome their difficulty and rise to considerable mental and physical challenges.
5. The tense, anxious individual is more likely to become airsick. Interestingly, Strickland and Ferris(388) noted that psychiatric patients being transported by air evacuation did not become airsick more frequently than other patients.
6. Individuals who are subjected to psychic trauma without exposure to motion often demonstrate symptoms resembling those of an airsick individual. This of course suggests that the symptoms of airsickness and those following psychic trauma are both common expressions of reaction to threat.

Diagnosis. Any comprehensive diagnostic work-up of a patient with airsickness should include an opinion regarding psychogenic influences. True airsickness will be recognized by the absence of factors which can be causally implicated. Such patients, in the author's experience, usually give an early history of motion sickness from which they seem to have recovered. This is not the rule, however, and there may be no prior history whatsoever. The past history is subject to question, however, if the patient might be subjected to official censure for fraudulent entry into the training program.

Among cases of symptomatic airsickness, the psychiatric entity which is most frequently considered in differential diagnosis is the psychogenic gastrointestinal reaction. The latter is the more likely explanation, i.e., sickness in the aircraft is purely coincidental, if one obtains a history of symptomatic exacerbations during periods of stress in previous life. Such patients often show other neurotic traits which will also aid in placing motion factors in their proper perspective. The examiner should exercise caution in interpreting the significance of the emotional reactions of patients with true motion sickness, or motion sickness which is symptomatic of conditions in which psychic factors play a minor causative role. It is understandable that such patients show considerable apathy and lack of motivation for flying, since this becomes equated with the marked discomfort of repeated attacks of airsickness. Such a secondary avoidance pattern should not be misconstrued as voluntary shirking of duty.

Careful selection procedures will aid considerably in weeding out subjects with more obvious airsickness. Screening cannot be relied upon, however, as entirely reliable. The applicant may become a successful flyer despite a past history of motion sickness, dislike for swings and a present untoward reaction to the rotating chair. It is vitally important to evaluate the way in which a man professes a history of motion sickness. He may be well-motivated, but truthful toward the examiner. Less favorable is the candidate who confession of motion sickness masks a loss of motivation for the flying training program.

Selection procedures can be greatly improved if applicants for flying training are offered an opportunity to fly before acceptance. Airsickness occurring among men at this time provides an excellent case-finding technique, and all so affected should be reevaluated medically and psychiatrically.

Management. The underlying therapeutic principle in motion sickness is the minimizing of the intensity and/or duration of as many of the disturbing stimuli reaching the central nervous system as possible. This may be accomplished by the use of drugs and there are many which serve this purpose. In general, it is undesirable to train a man to fly knowing that he will constantly require drug therapy, therefore military management must rely on additional measures.

Among student flyers, the problem can be approached in a two-fold manner. The great majority will adapt during the early weeks of flying training, provided they retain their enthusiasm for flying, are not overstressed so as to interfere with gradual conditioning, and are handled with understanding. Those who are not able to adapt themselves should be identified early, and this can be materially assisted by regular observations submitted by flight instructors. Hemingway(150) has found that among aviation students there is a rapid fall in the incidence of airsickness from the first to the fifth flight, with a more gradual fall from the sixth to the tenth flight. Many more men were not sick at all, and many more men were sick three or more times than would be expected. If a student were not sick on the first two flights, his chance of being sick on the next two was 2 in 100. If sick on the first two flights, his chances of being sick on the next two were increased to 37 in 100.

The flight surgeon's therapeutic functions are called into play more prominently when his airsick patient is a trained flyer. Among such personnel, emotional factors are much more prominent. Often the man's motivation is so low that he is unwilling to tolerate the mild motion sickness ignored by many successful and well-motivated flyers. Specific medication may be indicated among such patients, but will not succeed unless coupled with supportive psychotherapy directed at the patient's adjustmental and motivational problems.

As indicated previously, airsickness among trained flyers is not a major problem. Greenberg(148) studied 11,88 returning combat flyers in World War II. The overall incidence of airsickness during training among the group was 25.7%, however all completed training and a tour of combat. The overall incidence of airsickness during combat was small, 5.4%, comprised of 1.7% who had not been airsick in training. The rate of interference with the performance of combat missions was very low: 0.3 per 1000 man-missions. The veterans suggested many ways of combatting airsickness: relax in the aircraft, continue to fly, stick with it until symptoms no longer occur, eat moderately, don't eat foods that disagree with you, direct your attention, keep busy, think of something else.

In conclusion, this chapter has presented in brief form the terminology employed by the Air Force to categorize the many psychosomatic symptom complexes. In addition, a perspective of these disorders has been presented, as well as a consideration of their economic and practical significance in military and aviation medicine. Essential to any understanding of this area of medicine is a full appreciation of the comprehensive nature of psychosomatic disorders and an ability to see them in a dynamic, unified sense which goes beyond the tendency to demarcate physical from psychological considerations.

## CHAPTER VI

### CHARACTER AND BEHAVIOR DISORDERS

The dynamic psychological processes thus far presented have dealt with those clinical entities in which anxiety is internalized by means of various mechanisms of defense. These are found to result in psychoneurotic symptom-formation. The repression of psychological conflict leading to somatization symptoms and organic structural changes have also been considered. There are still other ways of handling conflict, and these have to do with the 'acting out' of conflict in a manner which involves other people or society in general, in such fashion as to make of life a drama in which problems can be relieved, situations recreated, and in which other participants can be brought upon the stage to play their roles as the subject recreates them.

This general psychodynamic configuration underlies the many categories and classifications which the military nomenclature groups into the character and behavior disorders.

These patterns of action and behavior have long represented a diagnostic wastebasket which has resisted attempts to form comprehensive, dynamic categories. Part of the trouble has been the fact that these patterns encompass, at times, such coincident phenomena as proven brain damage, epilepsy, transient psychotic breaks with reality, and very frequently, overlying psychoneurotic symptomatology. To the examiner at any given moment, there is a wide spectrum of diagnostic possibility, and unless he has access to a fund of longitudinal information about the patient, diagnostic accuracy suffers accordingly. The doctor's position is somewhat analogous to the weather man who is asked to give a 6-month weather forecast for an area where nothing is known about the climate. It is only when the present phenomena fall into a pattern which tends to repeat itself over and over in many if not all situations in life, that he can begin to see the problem as a character and behavior disorder.

The Ego in character and behavior disorders is so scarred from repeated internal conflict that it has been drawn into the fray. Those energies which would be available for effective behavior are greatly diluted, and reflect the on-going conflict. The terms 'fixation' and 'regression' are applicable to these disorders which are a lifelong pattern and orientation towards one's self and toward others. A psychodynamic frame of reference, therefore, is as applicable to the understanding of these disorders as it is to those previously described. Neurotic conflict and anxiety are the common ground which gives use to all these clinical entities. In the character and behavior disorders, internal conflicts continue to motivate behavior throughout life.

There are certain very important practical and administrative overtones to the character and behavior patterns. The Air Force makes a sharp distinction between the management of psychoneuroses on the one hand and character and behavior disorders on the other. The former are regarded as medical problems, with provision for disposition through medical channels with, if appropriate, disability compensation and retirement. Character and behavior disorders, however, are administrative problems, and the medical officer is cautioned by regulation not to open medical channels to patients of this type. This places the medical officer in a dilemma since the two categories overlap considerably. Most psychoneurotic disorders of a persistent or severe nature are found to be surface disturbances of underlying character and behavior disorders. Management is most effective if both categories are handled by administration which is enlightened and humane, in terms of the existing reality situation. More will be said on this subject in later chapters, but the essence of the problem is that the medical officer alone must not shoulder society's burden in differentiating between those who will not and those who cannot serve in a military situation. Experience has shown that superimposed moral judgments of this kind do much to vitiate effective medical care.

It is a rare physician who can consider the patient with a character and behavior disorder without experiencing some degree of emotional reaction. It is an oft-repeated axiom in psychiatry that when everyone has something to say during a case conference, the patient usually belongs in this diagnostic category. These disorders, with their coincident physical diseases, give the military physician much trouble and concern, and lead the latter to fortify himself with numerous defenses in dealing with them.

The military nomenclature divides the character and behavior disorders into two broad categories: the pathological personalities in which the personality structure is assumed to be relatively fixed, and immaturity reactions wherein regressive behavior takes place under stress. Other diagnostic entities, such as alcoholism and malingering will be discussed separately.

#### PATHOLOGICAL PERSONALITY TYPES

Schizoid Personality. These are individuals who react with unsociability, seclusiveness, serious mindedness, normalism, and eccentricity. The term would seem to imply that there is a predisposition to schizophrenia, which is not necessarily true. This personality type is quite compatible with a lifelong non-psychotic adjustment and milder forms achieve success in many walks of life, particularly the artistic and creative. Careful study is often required to determine where the borderline lies between a markedly schizoid individual, and the latent, or so-called ambulatory schizophrenic. Actually, these cases fall along a continuum, and drawing the line is a matter of skilled clinical judgment.

The schizoid personality tends to have difficulty in the military environment when placed in a situation from which little or no withdrawal is possible, for example, an isolated Air Base where one must lean heavily on his fellows for emotional support. In such close quarters the schizoid socializes poorly and soon comes to be singled out as peculiar by his associates. If some freedom of action and ability to withdraw from interpersonal contacts is possible, the schizoid may make an acceptable adjustment. Although these people are usually not leaders, and lack the ability to form strong identifications with their group, nevertheless milder cases carry on successfully in combat flying and in some instances their performance may be outstanding. As one would expect, success is more frequent in individual performance. The close associations within a bomber crew tend to threaten them and stir up anxiety.

Paranoid Personality. Such individuals are characterized by many traits of the schizoid personality, coupled with a conspicuous tendency to utilize a projection mechanism, expressed by suspiciousness, envy, extreme jealousy and stubbornness. As with the schizoid, they are on precarious psychological ground, and are usually a problem to those who must serve with them. They tend to find issues to champion, and expend their energies in fighting their own people, rather than the enemy. The paranoid is capable of posing complex medico-legal problems in which the medical officer and military psychiatrist become embroiled. The paranoid, because he has a large reservoir of hostility, is sometimes a useful combat soldier, but for the most part he is a poor team member and has his greatest success in lonely pursuits or in warped efforts to justify himself.

Cyclothymic Personality. Such individuals are characterized by frequent alternating moods of elation and sadness, stimulated apparently by internal factors rather than by external events. The individual may occasionally be either persistently euphoric or depressed, without falsification or distortion of reality. The diagnosis in such cases should specify, if possible, whether the picture is hypomanic, depressed or alternating in quality. This disorder is infrequently recognized in the military setting. Many cyclothymes lead very useful and productive lives, often driven by their own persuasiveness, energy and optimism. Some cases progress to become frank manic-depressives, however there are many more in whom the course remains benign and sub-clinical. The depressive mood swings may be masked by alcoholism or some type of self-destructive behavior which is not recognized as secondary to the basic disturbance.

Inadequate Personality. Such individuals are characterized by an inadequate response to intellectual, emotional, social and physical demands. They are neither physically nor mentally grossly deficient on examination, but they do show inadaptability, ineptness, poor judgment, and social incompatibility. Because inadequacy of one kind or another characterizes almost every patient referred to a psychiatrist, this diagnostic category tends to become something of a wastebasket and a refuge from more detailed and accurate

diagnostic appraisals. Some patients who seem to fall clearly into this category will be found on further study to show a schizophrenic process. Therefore, this possibility should also be considered whenever one is confronted by a picture of markedly inadequate behavior.

Antisocial Personality. This term refers to chronically anti-social individuals who, despite a normal moral background, are always in trouble, profiting neither from experience nor from punishment, and maintaining no real loyalties to any person, group or code. Ordinarily, an individual of this type is not a calculating criminal, but one who is often on the verge of criminal conduct and may eventually become involved in such conduct. This term includes most cases formerly classified as 'constitutional psychopathic state' and 'psychopathic personality,' but as defined here the term is more limited and specific.

This personality type is frequent in military service where opportunity is provided for them to 'start over' at a safe distance from the troubles of their past. Intellectually, they often are superior and have pleasing, winning ways on initial contact. An unsuspecting officer may place them in responsible positions without realizing their harmful potentialities. Because of their diffuse and shifting loyalties, as well as their recurring need to flaunt authority, these people are poor security risks. They marry, divorce and remarry with great ease creating sociological problems for their commanding officers, their Air Base, the legal and medical officers, and many others. Then, when the situation becomes too inflexible, they drink to excess, or go AWOL which is, from the official standpoint, an expensive and time-consuming management problem. Usually these people are able to derive protection from ill-advised and well-meaning supporters. Corrective action may not be taken for a surprising length of time and only after many escapades. Needless to say, these people are poor diplomats when stationed with American Troops in overseas areas.

The physician may at times fall under the spell of the psychopath, especially if he shares the latter's belief that the military is a threatening and punitive organization. Or, he may be enticed by ready expressions of penitence and desires to mend wayward behavior. The psychodynamics are often appealingly obvious and tempt the psychiatrist to undertake psychotherapy, especially because of the psychopath's ability to 'develop' insight into his behavior.

One not infrequently hears reports of the outstanding performance of the psychopath in combat flying. Such reports are difficult to document, and the term 'psychopath' tends to be used loosely. That such feats are possible is evidenced by the psychopath's intelligence and native ability to coordinate for successful military flying. His acts of heroism, like most of his behavior, are characterized by impulse, superficial dash and daring, and absence of clearly defined goals. On a deeper level these acts have a self-destructive quality which keynotes much of his behavior. The

discouraging thing about the psychopath is that he shows so much initial promise which fails to materialize.

When external pressures become too great, psychopaths are capable of impulsive suicidal acts which may be successful. There may, as well, be transient psychotic breaks with reality, which may or may not resemble purposeful malingering, because they may occur in situations where psychosis offers considerable secondary gain. Nevertheless, it is clear to all who work with these people that they are poorly integrated social liabilities. Society has yet to find an adequate method of recognizing and dealing with these people who are 'socially psychotic' and yet have no disease according to medical standards.

Asocial (Amoral) Personality. This term applies to individuals who manifest disregard for social codes and often come in conflict with them as the 'normal' result of having lived all their lives in an abnormal moral environment. They often become gangsters, vagabonds, racketeers, and prostitutes. This term includes most cases formerly designated as 'psychopathic personality, with asocial and amoral trends.' Fortunately, these people are relatively rarely encountered in military psychiatry, perhaps because they truly have no anxiety and within them there is no conflict. They are simply leading the only kind of life they know.

Sexual Deviate. This diagnosis is reserved for deviant sexuality which is not symptomatic of the more extensive psychopathology of schizophrenia and the obsessional reactions. The term includes most of the cases formerly classed as 'psychopathic personality with pathologic sexuality.' The diagnosis should state whether the condition is overt or latent, and specify the type of the pathologic behavior, such as homosexuality, transvestitism, pedophilia, fetishism, and sexual sadism (including rape, sexual assault, mutilation).

#### INMATURE REACTIONS

Emotional Instability Reaction. In such cases the individual reacts with excitability and ineffectiveness when confronted with minor stress. His judgment may be undependable at such times, and his relationship to other people is continuously fraught with fluctuating emotional attitudes, because of strong and poorly controlled hostility, guilt, and anxiety which require quick mobilization of defenses for the protection of the Ego. This term is synonymous with the former term, 'psychopathic personality, with emotional instability.'

Differential diagnosis is sometimes difficult on first encounter with personalities of this sort, since their very labile emotional structure may erupt into any of the acute psychoneurotic reactions, ranging from acute anxiety or dissociation to phobias and conversion reactions. Transient depression may also be seen. Not infrequently

the emotionally unstable individual finds consolation in alcohol and this may be the presenting problem.

Passive-dependency Reaction. This reaction is characterized by helplessness, indecisiveness, and a tendency to cling to others. The clinical picture in such cases is often associated with an anxiety reaction which is typically psychoneurotic. There is a predominant child-parent relationship in such reactions. The passive-dependent represents a very poor risk in aerial or any other type of combat. Most passive-dependents do not persist beyond flying training, although they may occasionally slip through. They are occasionally successful in completing a combat tour, usually because their needs are gratified by some strong, supporting father-figure who maintains their stability. The removal of this supporting figure leads to rapid decompensation. Among infantrymen, these are the individuals who go forth in battle without ever firing their weapons out of fear of provoking reprisal from the enemy. In the Air Force his counterpart flies patrols but rarely spots enemy aircraft.

Although the combat environment offers many threats to the passive-dependent individual, there are other situations in the Air Force which offer a haven of refuge. There is much comfort in the close authoritarian supervision, the regular meals and pay, and the individual, out of a desire to please his superiors, may rise in time to a position of responsibility which is incompatible with his emotional structure. One then may see the anxious helplessness which characterizes the middle aged field grade officer or master sergeant so frequently seen on the psychiatric service of a military general hospital. The picture is usually complicated by this time with somatization symptoms, feelings of depression, and sometimes alcoholism.

Passive-aggressive Reaction. The aggressiveness is expressed in such reactions by passive measures such as pouting, stubbornness, procrastination, inefficiency, and passive obstructionism.

Aggressive Reaction. Frustration is handled by irritability, temper tantrums, and destructive behavior as the dominant manifestations. A specific variety of this reaction is a morbid or pathologic resentment. Below the surface, a deep dependency is usually evident in such cases. The term does not apply to cases more accurately described by the term 'antisocial personality.' If the type of aggression here described can be harnessed to useful activity against the enemy, this personality disorder can contribute valuable combat service. Among their fellows they may erupt into violent behavior under minor stress, especially under the influence of alcohol. Nevertheless, with strong combat leadership to satisfy their dependency needs, these individuals can have many desirable attributes.

Immaturity with Symptomatic 'Habit' Reaction. This diagnostic category is useful in occasional situations where a specific symptom is the single outstanding expression of the psychopathology. This

term should not be used as a diagnosis, however, whenever the symptoms are associated with, or are secondary to, organic illnesses and defects or to other psychiatric disorders. Thus, for example, the diagnosis 'immaturity with symptomatic habit reaction; speech disorder' would be used for certain speech disturbances in which there are insufficient other symptoms to justify any other definite diagnosis. It would not be used for a speech impairment that was a temporary symptom of conversion hysteria or the result of an organic disease or defect. The diagnosis should specify the particular habit reaction, as, for instance, enuresis, speech disorder, stammering, stuttering, excessive masturbation, and so forth.

### ALCOHOLISM

The consumption of alcohol in the military environment is probably one of the oldest forms of gratification known to man in a difficult setting. When all else has been given up -- the support of family groups, of familiar social settings -- the airman can find some sociability and solace in alcohol. If one were to stop furnishing alcoholic beverages to all military personnel, the effect on morale would be immediate and devastating, particularly in those places where little is afforded in off-base activities, and men live in close proximity to each other and to the hazards of combat.

The shifting tempo of military life carries with it the ever present possibility of alcoholic overindulgence. Of course, there is a difference between alcoholism and simple drunkenness, and the former should be regarded as that state in which the individual habitually uses alcohol to the point of social or physical disablement, as evidenced by loss of job, repeated disciplinary difficulties, or hospital treatment because of alcoholism.

The particular problem in aviation centers on the fact that flying and alcohol do not mix. The types of alcoholic indulgence which the flight surgeon encounters run the entire range from true chronic alcoholism to mild social drinking. But the latter can be regarded as of equal seriousness when one realizes that it takes twelve hours for the alcohol from six highballs or five 12-ounce bottles of beer to disappear from the body. The presence of even minute amounts of alcohol in the system of a pilot may affect his judgment and reflexes enough to make a considerable difference in his ability and reactions. This is especially important in modern, high-speed aircraft. The pilot himself cannot tell when small amounts of alcohol are present. In fact, if he is slightly hypoxic as a result of alcohol he may feel himself to be in excellent condition.

Much can be done in the operational setting if the flight surgeon makes a point of indoctrinating his flying personnel regarding the effects of alcohol. In such groups one can point out that ethyl alcohol is always a depressant and not a stimulant, and that it is absorbed

rapidly without requiring digestion. The pilot of a high speed aircraft can well appreciate the dangers of an agent which so affects his attention, concentration and reasoning.

The problems of alcoholism are much more numerous among non-flying personnel, and these can create many difficulties for the flight surgeon when he must assume responsibility for their care as well. In the Air Force alcoholism is both a medical and an administrative problem. It is medical in that the intoxicated individual is incapable of caring for himself during the acute period and may injure himself or suffer exposure. In addition, his system begins, with time, to show the effects of repeated insults and he may show early hepatic cirrhosis, avitaminosis, gastritis, etc. On the other hand, alcoholic intoxication and the resultant disturbed behavior are unbecoming to an officer or airman, and he may be liable to disciplinary action. It is at times when no individualization of case management is permitted that major difficulties arise, as for example when the medical officer finds himself between a hospital commander who will permit no alcoholics within the confines of his hospital, and an Air Provost Marshal who feels that an acutely intoxicated individual is unsafe to confine in his stockade. Each case must be handled on its own merits in the receiving ward, and certainly no case should be turned over to the Air Police without thorough examination, especially when unconsciousness is present. The taking of a laboratory sample for blood alcohol determination is now standard procedure, and in addition, affords protection to the attending medical officer. The examiner should, in addition, be familiar with other signs and symptoms of the chronic alcoholic: suffused eyes, prominent superficial blood vessels of the nose and cheeks, flabby, bloated face, red or pale purplish discoloration of mucous membrane of pharynx and palate, muscular tremor of the protruded tongue and extended fingers, tremulous handwriting, and emotionality. The farther advanced alcoholic syndromes such as delirium tremens, Korsakoff's syndrome, etc., are seen less commonly in the military population, possibly because these conditions usually require several years of alcoholic overindulgence. When this is encountered in an airman or officer, the possibility should always be considered that the alcoholism is a surface disturbance in an individual with an underlying psychotic disorder.

From a standpoint of prognosis, the alcoholic may continue to slide downhill until such time as his commanders no longer will tolerate his behavior, and initiate administrative separation proceedings. However, there are many individuals whose alcoholic tendencies are offset by intelligence and an ability to perform their duties satisfactorily when not under the influence of alcohol. Such people are very susceptible to good or bad leadership, and this is often the key to their ability to perform acceptably. An alcoholic who appears to have reached a point of no return may under skillful and understanding supervision begin to do surprisingly well. Because the condition is usually episodic, there may be relatively long periods of good service between alcoholic 'sprees.'

This discussion has not entered into the psychodynamic considerations of alcoholism. The disturbance known as alcoholism may be, under the surface, any one of several types of reaction ranging from an acute situational maladjustment to the deep-seated oral cravings of the so-called 'true' alcoholic. Therefore, intelligent handling of the alcoholic must always begin with a thorough clinical appraisal of the problems involved.

### MALINGERING

This condition is thoroughly discussed in Air Force Manual 160-1(32), and is reviewed here in detail. The malingerer is one whose complaints of bodily disorders, and whose acts are in simulation of some physical or mental disease for the purpose of attaining a particular end. Malingering is encountered in many situations but most frequently during the preliminary examinations and early training periods of military service. Many problems arise in differentiating simulated from actual neurosis or physical illness. Simulation is in keeping with the extent of the knowledge possessed by the person regarding the disorder from which he pretends to suffer, and therefore constantly changes. A skillful and informed malingerer, however, is difficult to detect.

For a disorder to be classed as true malingering, it must fulfill the following requirements: first, there is no actual disease sufficient to account for the symptoms. Second, there is a conscious awareness on the part of the examinee of what he is doing and of his motives. Third, the examinee's actions have a fixed purpose and are designed to arrive at a preconceived result.

Although there is a considerable overlap from one category to another, malingererers can be regarded as falling roughly into three different groups:

1. Malingering of a temporary nature by one who has no past history of similar patterns of reaction but who is making an attempt to escape an emergency.
2. Malingering by exaggerating existing conditions or symptoms for the purpose of avoiding military service. This may be enlargement on minor physical ailments or relatively insignificant disease, emphasizing mild personality problems or neuroses, or overemphasis on symptoms of fatigue.
3. Malingering as a manifestation of a character and behavior disorder with a suggestion or definite history of previous antisocial behavior.

The psychoneurotic suffering from a conversion reaction believes in the reality of a disability which on the surface appears to be a

definite simulation. Such cases require special investigation. Conversion reactions are frequently confused with true malingering by those who consider that such individuals should be able to control their symptoms voluntarily. Some of these psychoneurotics exaggerate their symptoms more or less unconsciously to gain their ends, thus emphasizing the question of how much is neurosis and how much is simulation.

Reactions considered to be malingering may appear in those who are physically ill, as well as in those suffering from psychoses, epilepsy, and organic brain disorders.

Among the conditions which the medical officer may encounter in which there may be a possibility of malingering are evidences of old injuries sustained under questionable circumstances, unwarranted use of crutches and braces, stiff back, pain and hyperesthesia, anaesthesia, epilepsy, mental deficiency, hysteria and psychosis. In the physical examination for flying, malingering particularly is found to involve visual and hearing difficulties.

Persons who are suspected of malingering should be studied thoroughly from a psychiatric standpoint. When the examination brings to light a definite psychoneurosis or other mental disorder, this will guide further action. Detection of malingering is more likely to result when the examiner allows the examinee to believe that his case is regarded from the first as genuine and that his story is not discredited.

Among the three groups previously listed, the typical members are readily distinguished, but intermediate cases which resist differentiation often occur. It is more difficult, however, for a healthy person to feign disease than it is for a diseased person to simulate health. A malingerer may be able to simulate and to accentuate single symptoms, but he is almost always unable to feign the entire picture of the disease he has selected. Thus, the expert can usually detect malingering.

Firm, just and positive leadership is the most effective aid in the prevention of malingering, and even more important, in the prevention of psychiatric casualties. There is a large group of individuals whose ability to withstand unfavorable stress is strengthened or weakened by the attitudes of their associates. They are dependent upon the support afforded them by persons in their immediate environment and particularly by their leaders. In all social units, including the Air Force, the individual is dependent to a degree upon group pressure for support, and his actions are largely determined by group standards of acceptable and unacceptable behavior. If deviations from acceptable standards of behavior are allowed to go unchallenged by those in leadership roles, the individual may conclude that the standards are wrong or that higher authority condones or even approves of such deviations. The loss of

this important support obtained from authority may further increase the individual's conflict between his wishes to escape unfavorable stress and his sense of duty.

## CHAPTER VII

### PSYCHOSIS - GENERAL ASPECTS

A psychotic reaction is one in which the personality, in its struggle for adjustment to internal and external stresses, utilizes severe affective disturbance, profound autism and withdrawal from reality, and/or formation of delusions or hallucinations. These problems are principally concerned with early detection on the part of the flight surgeon. He should be alert to detect psychosis in applicants for flying training, but should also bear in mind that it occurs occasionally in the older flyer whose previous adjustment may have been satisfactory.

The incidence of psychoses in the Air Force is uniformly constant, showing little fluctuation in times of stress or lack of stress. There is no increase during warfare, and this fact is advanced as an indication that the psychoses are not related to environmental stresses. The combat airman is a carefully screened individual, however, so that selection factors should not be eliminated from consideration. There seems to be no correlation between the incidence rates for psychoses and the availability of preventive or outpatient treatment facilities.

### SCHIZOPHRENIC REACTION

The commonest form of psychosis is the schizophrenic reaction. Although comprising only 0.3% of all hospital admissions, schizophrenia accounts for 17.4% of all Air Force disability separations and retirements. Schizophrenia is characterized by a fundamental disturbance in reality relationships and concept formations with associated affective, behavioral and intellectual disturbances, marked by a tendency to retreat from reality, by regressive trends, by bizarre behavior, by disturbances in stream of thought, and by formation of delusions and hallucinations.

Schizophrenic Reaction, Simple Type. This type of reaction is characterized chiefly by reduction in external attachments and interests and by impoverishment of human relationships. It often involves adjustment on a lower psychobiologic level of functioning, usually accompanied by apathy and indifference, but rarely by conspicuous delusions or hallucinations. In contrast to the long history of the schizoid personality, showing slight or no change in symptomatology, the simple type of schizophrenic reaction characteristically manifests a marked increase in the severity of symptoms over long periods.

Schizophrenic Reaction, Hebephrenic Type. Such reactions are characterized by shallow inappropriate affect, unpredictable giggling, silly behavior and mannerisms, delusions often of a somatic nature, and hallucinations.

Schizophrenic Reaction, Catatonic Type. This reaction is characterized by conspicuous motor behavior, exhibiting either marked generalized inhibition (stupor, mutism, negativism, and waxy flexibility), or excessive motor activity and excitement. The individual may regress to a state of vegetation.

Schizophrenic Reaction, Paranoid Type. This type of reaction is characterized by schizophrenic unrealistic thinking and unpredictable behavior, with mental content composed chiefly of delusions of persecution, occasionally of grandeur, hallucinations, a fairly constant attitude of hostility and aggression, and ideas of reference. Excessive religiosity may be present and, rarely, there may be no delusions of persecution. Instead, there may be an expansive and productive delusional system of omnipotence, genius, or special ability. The systematized paranoid hypochondriacal states are included in this group.

Schizophrenic Reaction, Latent. Certain individuals are found on examination to present definite schizophrenic ideation and behavior (e.g., mannerisms, unpredictable acts), beyond that of the schizoid personality, but not of an advanced stage as in acute or chronic schizophrenic reactions. These individuals may be incipient schizophrenics, and they may maintain their borderline adjustment over long periods. Among their friends, these individuals are regarded merely as queer or eccentric; under close examination, however, they show evidence of psychotic symptoms. They represent essentially borderline psychoses.

Important diagnostic evidence of such reactions consists of disordered conceptual (categorical) thinking as manifested in special tests, such as the Rorschach test, the Vigotsky (Hanfman-Kasanin) category tests, the sorting tests, (Goldstein-Sheerer, Rapaport, and Halstead) proverbs and problems (J. Benjamin, N. Cameron), and the Murray Thematic Apperception Test. Hospitalization of such cases is rarely necessary.

Schizophrenic Reactions, Not Elsewhere Classified (N.E.C.). There are two large groups (acute and chronic) of schizophrenic reactions which cannot be appropriately classified under the preceding types. In all cases where this diagnosis is made, the important descriptive features will be specified: e.g., Schizophrenic Reaction, unclassified, acute, with confusion, ideas of reference, elation and excitement.

Acute. The acute group of this reaction includes cases exhibiting a wide variety of schizophrenic symptomatology, such as confusion of thinking and turmoil of emotion, manifested by perplexity, ideas

of reference, fear and dream states, and dissociative phenomena. These symptoms appear precipitously, often without apparent precipitating stress, but exhibiting historical evidence of prodromal symptoms. Very often it is accompanied by a pronounced affective coloring of either excitement or depression. The symptoms often clear in a matter of weeks, although there is a tendency for them to recur.

Chronic. The chronic schizophrenias exhibit a mixed symptomatology, and when the reaction cannot be classed in any of the preceding main types, it should be placed in this group.

### AFFECTIVE REACTIONS

Manic Depressive Reaction. This term is synonymous with the term manic-depressive psychosis. This reaction will be further qualified by one of the following appropriate terms: manic, depressive; stuporous; circular; agitated; with schizophrenic coloring; and mixed.

Psychotic Depressive Reaction. This reaction differs from the manic-depressive reaction principally in absence of history of repeated depressions and frequently in presence of obvious environmental precipitating factors. The patient manifests evidence of gross misinterpretation of external reality (e.g., matters of guilt and unworthiness). This reaction differs from neurotic depressive reaction chiefly in degree.

Involution Melancholia. This reaction is characterized most commonly by depression, with or without agitation, without previous history of either manic or depressive illnesses. It occurs in the individual's middle life and in his later years. It tends to have a prolonged course and may be manifested by worry, guilt, anxiety, agitation, paranoid and other delusional ideas, and somatic concerns. Some cases are characterized chiefly by depression and others chiefly by paranoid ideas. Often these reactions are accompanied by gastrointestinal or other somatic concerns to a delusional degree.

### PARANOID REACTIONS

Paranoia. This type of psychotic disorder is extremely rare. It is characterized by an intricate, complex, and slowly developing paranoid system with the individual usually regarding himself as particularly singled out. The patient often endows himself with superior or unique ability, and even considers himself appointed for a Messianic mission. The paranoid system is particularly isolated from much of the normal stream of consciousness, without

hallucinations and with relative intactness and preservation of the remainder of the personality.

Paranoid State. This type of paranoid reaction is characterized by paranoid delusions. It lacks the logical nature of systematization seen in parancia; yet it does not manifest the bizarre fragmentation and deterioration of the schizophrenic. It occurs most frequently in individuals between 35 and 55 years of age, and it is ordinarily of a relatively short duration, though it may be persistent and chronic.

#### PSYCHOSIS IN FLYERS

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Psychotic disorders are such an infrequent occurrence among flyers that the author has wondered if there might be any usual features when such illness does occur. The literature is rather scant in this respect, however, two studies were made in World War II. Symonds reported thirteen schizophrenics and three elations among a group of 1197 neuropsychiatric casualties from the Royal Air Force. (229) Hastings et al found three psychotics among sixty neuropsychiatric casualties in the Eighth Air Force. (244) The details of these cases were not elaborated upon, however.

Other questions which the author has pondered have been concerned with prompt recognition of psychosis. What are the early signs which an alert flight surgeon should keep in mind? Also, what are the dangers involved when a disturbed person has access to an aircraft?

#### METHOD OF STUDY

This report is an analysis of 77 cases of functional psychosis reported by thirteen USAF neuropsychiatric treatment centers which maintain clinical record libraries. The patients here reported were hospitalized during the period from January 1951 to November 1954, and the analysis is based upon the detailed narrative summary of each case as it was preserved in the hospital library.

#### RESULTS

Diagnosis. The distribution according to diagnosis is noted in Table I. In comparing these figures with those reported by Framo and Riffe(491) of a cross section of a Naval neuropsychiatric population, it is noted that this series of flyers contains a smaller number of schizophrenics than these authors reported, probably due to the older average age of the flyers. Framo and Riffe's psychotic population showed an incidence of all types of schizophrenia of

94.5%. In this series of flyers, 86% are in the schizophrenic category. The distribution of clinical subtypes is similar in the two groups, with the paranoid form present in approximately half the cases.

TABLE 1

DISTRIBUTION ACCORDING TO DIAGNOSIS

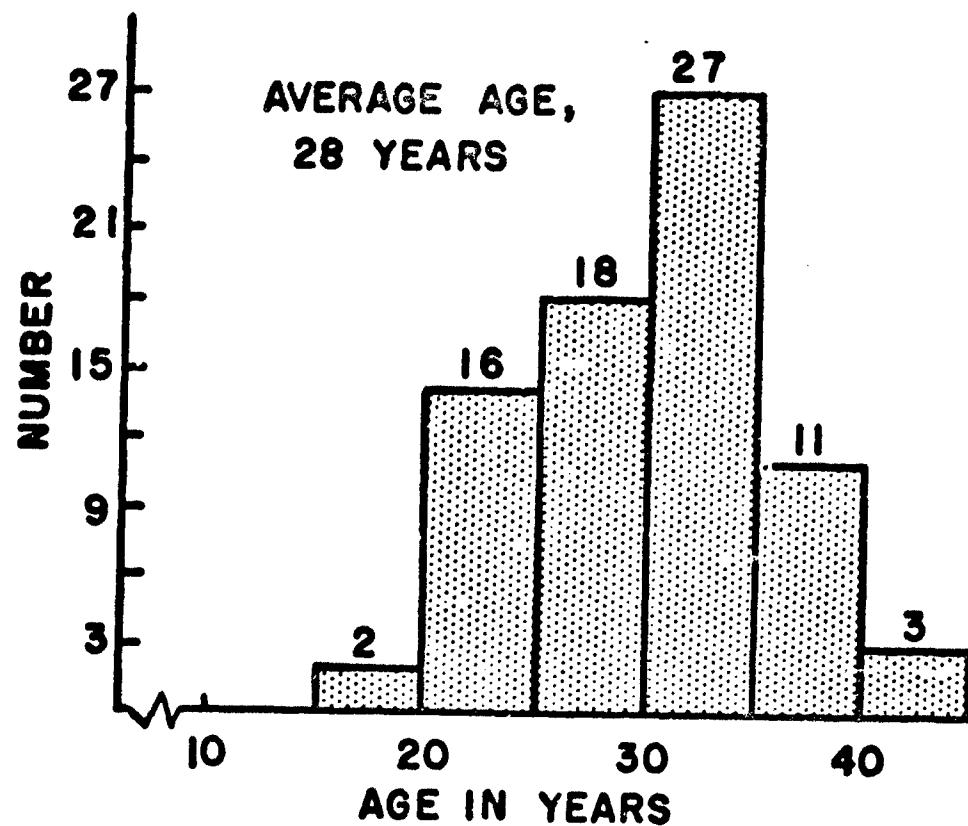
DIAGNOSIS	NO.	%
Schizophrenic, paranoid	40	52
Schizophrenic, unclassified	12	16
Schizophrenic, latent	8	10.4
Schizophrenic, simple	3	3.9
Schizophrenic, catatonic	3	3.9
Psychotic depressive reaction	4	5.2
Manic depressive psychosis	2	2.6
Involutional melancholia	2	2.6
Paranoid state	3	3.9
TOTAL	77	

Age and Rank. The average age of the patients was 28 (Fig. 1), as compared with Framo and Riffe's age of 23. It should be noted that there is an appreciable incidence of cases in the 30-40 age group of mature flyers. The average age of the schizophrenic flyers was 28.4 years, and of the non-schizophrenics, 32.5 years. Thirty of the patients were pilots, 16 were observers and 11 were students in pilot training. In rank these men ranged from Colonel to Basic Airman, however, the bulk were in the ranks of Captain, Lieutenant and Cadet, respectively. There are currently no comparable figures on the total flying population at risk with which to compare this, however, this distribution appears similar to the rank structure of the Air Force at the time these patients were hospitalized.

Marital Status. 48% of the patients were married, and 52% unmarried. Post-marital figures are not available. Kinsey's population of males in the 21-40 age group(49) contained 44% who were single, 45% married, and 11% post-marital. In the 31-40 category, the two groups were very similar. Marital status, therefore, does not appear to present any outstanding differential between patients and controls.

Predisposition, Stress and Past Adjustment. The determination of predisposition in this series is a composite of the author's opinion and that of the psychiatrist who completed the narrative summary of the case. Predisposition is rather carefully spelled out by Air Force Regulation 150-13A(389) and is determined by degree of past history of personality traits or emotional upsets, and by history of mental illness in the family. According to these

FIGURE 1



AGE AT TIME OF ONSET OF PSYCHOSIS.

The average age of 28 years for the entire group indicates that the psychotic flyer will often have passed initial screening and training phases.

criteria there is generally a moderate degree of predisposition present in the pre-psychotic flyer (Table 2).

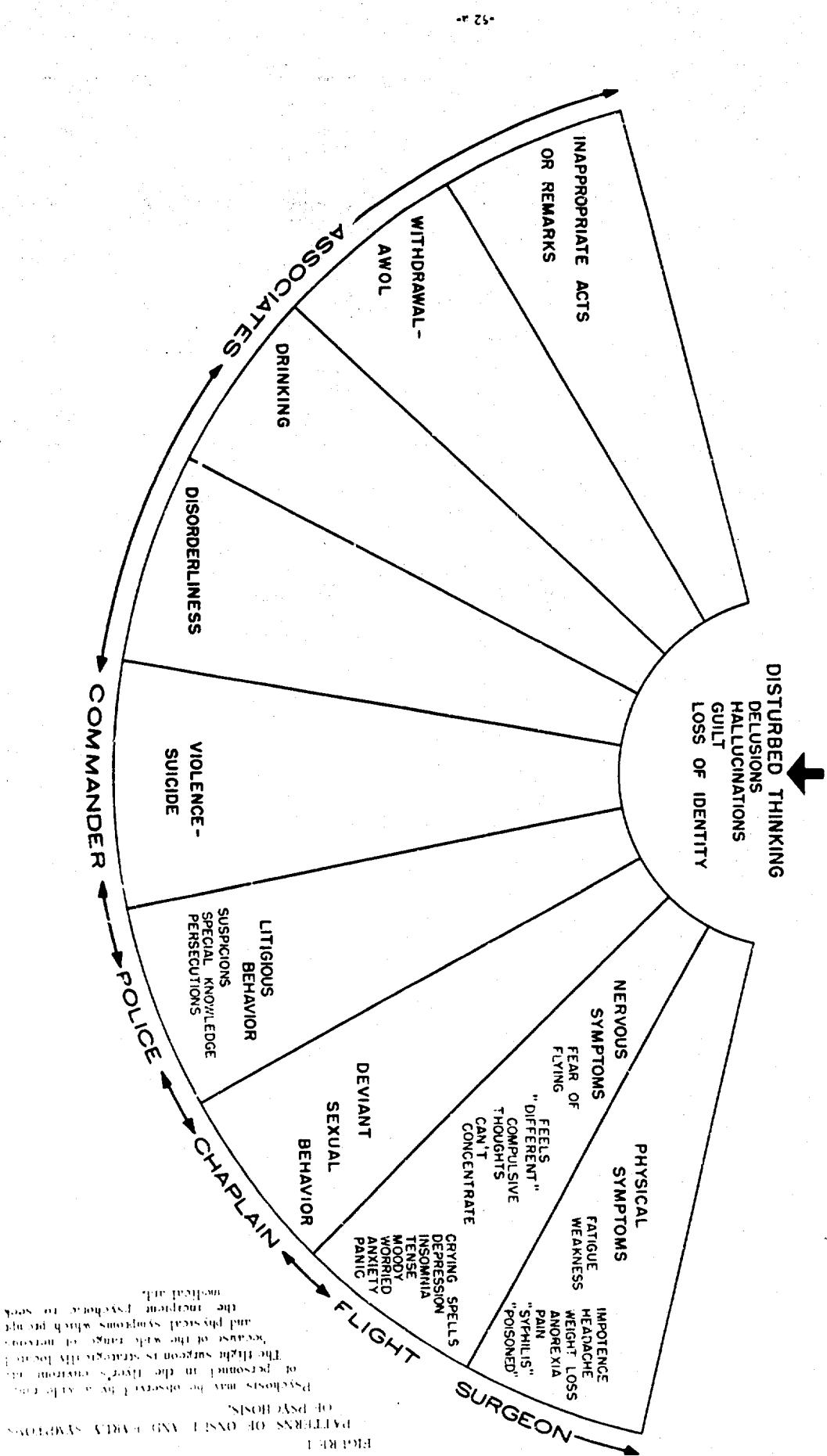
TABLE 2  
ESTIMATED PREDISPOSITION PRIOR TO PSYCHOSIS

PREDISPOSITION	NO.
None	3
Mild	13
Moderate	33
Severe	23
Unknown	5
TOTAL	77

The determination of stress is based upon the amount of psychological disturbance shown by the average man in the patient's unit. Following this criterion, 49 patients were under minimal stress, 14 under moderate stress and 4 under severe stress. In 10 cases the amount of stress had not been determined. There was no indication that flight in high-performance aircraft was a factor. In general, the stresses were those inherent in military life involving frequent changes and adjustments, shifting demands upon the individual, and the compounding of these stresses by marital and family problems. Data regarding past flying adjustment were hampered by such obstacles to fact-gathering as uncommunicativeness of the patient, treatment at a distance from the site of his flying duties, and preoccupation of the psychiatric staff with other aspects of the case, to mention a few. However, the case records did note that at least 13 had flown in combat, that 7 had a 'good adjustment' to flying previously, and that 7 had previously 'washed out' of a pilot or observer training program. 7 cases were reported to show maladjustment to flying, either in the form of a frank dislike or fear of flying and endangering the lives of others, or aggravation of various nervous complaints.

Patterns of Onset. Particular attention was paid to the earliest observations made of each patient, which ultimately led him to medical attention (Fig. 2). As would be expected, the persons who first noted the patient's difficulties ran the gamut of all those military personnel in the patient's environment. Nevertheless, the author was impressed by the close liaison among these observers, and by the rapid availability of specialized care, once the need was recognized. The flight surgeon was often the first person to recognize illness. Figure 2 shows the earliest symptoms or signs noted in this series, and the observers in the patient's environment who were most apt to detect them. Despite this evidence of early detection and treatment, there is a borderland in the early phase of illness when

## PSYCHOSES IN FLYING PERSONNEL PATTERNS OF ONSET



the patient needs help, but his needs are not recognized. This is no more a problem to the USAF than it is to a large industry or to the American Public. The earliest phase of a psychosis tends to be characterized by a certain degree of laissez faire and denial on the part of others. Effective management at this time raises very delicate medico-legal issues, but, in general, it would seem that efforts directed toward education of the public offer a partial solution.

Treatment and Disposition. With few exceptions these patients began treatment under closed-ward supervision. 6 of the group received insulin coma or sub-coma therapy and 29 received electro-convulsive therapy. Occasional cases were treated by a combination of the two. 18 patients were returned to duty not involving flying after an average hospitalization of 86 days. 35 were released to their own care after an average of 137 days, and 13 were transferred to a Veterans' Administration Hospital for further treatment. 8 cases had not been disposed of at the time this study was conducted, and 2 cases were successful suicides.

Suicidal Behavior. 2 patients in this series successfully took their own lives, one by carbon monoxide poisoning, the other by throwing himself in front of a speeding train. 4 other patients made serious suicidal attempts, and 5 others made partial attempts or threatened with some seriousness. 8 additional patients expressed suicidal thoughts. No member of the group displayed suicidal behavior which involved an aircraft, however, the author is aware either by press accounts or personal communications of individuals who have attempted or successfully committed suicide by aircraft.

The following are illustrative cases of psychosis in flying personnel taken from this series. Although typical of the group in general, these cases particularly illustrate some of the problems involved in early diagnosis:

#### Case I

Major L.N. was a 34-year-old white, married officer with 10 years of active service who was assigned to a select jet bomber crew. His illness began in January 1952, when he was found to have leukoplakia of the mouth. The patient was fearful at this time that he had contracted a venereal disease, but was reassured after his doctor had found blood tests and a darkfield examination to be negative. The leukoplakia was treated conservatively and improved. Approximately 4 months later the patient noted a skin eruption behind both knees and in the inguinal region. This was diagnosed as an eczema, and appropriate treatment brought about prompt clearing of the eruption. However, the patient was markedly concerned at this time, and his fears of venereal disease again came to the fore, requiring much reassurance on the part of his physician. In May 1952 the patient became very anxious because of itching and redness

of the scalp in the temporal region. He also felt that his hair was falling out. Because of his emotional state, his physician broached the possibility that his illness might be strongly determined by emotional problems. However, the patient was very resistant to such an interpretation. Nevertheless, his physician arranged for psychiatric evaluation.

In the course of psychiatric evaluation the patient was found to be growing progressively more disturbed, unable to work, depressed and fearful of going insane. He could not stand having the sun on his scalp, and was fearful of giving syphilis to his family. He was frequently tearful, unable to concentrate or read, had a poor appetite, and was drinking more than his usual amount in an effort to relax. Up until this time, he had continued with his flying duties, and although his efficiency had probably dropped off during the 2 or 3 months prior to his suspension from flying, his crew work was still reported to be very good. The patient was hospitalized in August 1952, at which time physical examination and routine laboratory studies showed no disease. He initially felt reassured during his hospitalization, but nevertheless continued to ask about symptoms and signs of syphilis. At this time a detailed history revealed that when the patient was young, he had a friend with congenital syphilis which lead to blindness and psychosis.

After improving initially, the patient's course again continued downhill, characterized by considerable anxiety, preoccupation with loss of body hair, and anosmia. At the patient's insistence, he was permitted to go on weekend pass to visit his family, and in the course of this learned from his wife that she had a doubtful serologic test. The patient talked about his insurance with his wife, and then left to report to the hospital. He was found several hours later, dead of carbon-monoxide poisoning in his automobile. The final diagnosis was schizophrenic reaction, paranoid type, acute, severe.

#### Case II

Captain F.R. was a 34-year-old officer who was admitted to a USAF hospital in England in October 1951 in an acutely depressed condition.

The present illness occurred at a time when there was much turbulence in his personal life: he had been recalled to active duty in the Air Force in February 1951. He went overseas to England knowing that his wife was contemplating divorce. After arrival, he was assigned to duties as a B-29 co-pilot and worried about his lack of proficiency in this aircraft. When he discovered that his wife was interested in another man he became acutely depressed, tearful and tremulous. At the time of his admission to the hospital there was a vague delusional quality in the patient's verbalizations. While in the hospital in England, the patient attempted suicide on two occasions. He was subsequently returned to the United States by air evaluation.

Physical examination revealed a thin, anxious and depressed white male, showing evidence of recent weight loss. Routine laboratory studies were within normal limits.

Previous Personal History. The patient was an only child whose parents were Yugoslavian immigrants. He had no memory of his father, who died of unknown cause when the patient was 18 months old. The mother married another Yugoslavian immigrant when the patient was 3. He remembers his mother as the dominant parent and the disciplinarian of the family. She forced him to do housework, asserting he "was only able to do girls' work."

Captain R.'s school work was unimpressive, and he quit while in the tenth grade. When he was 16 a pet dog died, apparently precipitating more than a normal depression. He recalled that he was lethargic for several weeks and repeatedly thought: "It should have been me, not my dog."

After quitting school, the patient worked as a bus steward, dishwasher, and then served 3 years in the US Army as a radio operator with a Field Artillery Unit. He completed an uneventful 3-year enlistment, then returned to civilian life to work as a machinist, then as a guard at a government arsenal.

Military History. Captain R. was accepted for aviation cadet training in March 1942. He completed pilot training and was commissioned as a Second Lieutenant in February 1943. At this time he married a girl he had met during cadet training. In August 1943 he was sent to the Eighth Air Force in England as a B-24 pilot. From the beginning, Captain R.'s combat experience was extremely stressful. His ship was shot up on several occasions, and he returned from his first mission to make a crash landing. Losses among his fellow crewmen were heavy. By his nineteenth mission he was showing marked difficulties: tightness in the stomach, bloating, and marked fatigue. His symptoms were all increased when a close friend was killed in a crash. Captain R. was removed from combat flying about this time, against his desires, and sent to radar school. Following this, he was transferred to Italy for further combat duty as a member of an exchange crew. He felt depressed and "kicked downstairs" in being sent to a less stressful theater. About this time the number of missions required for rotation was increased from 25 to 50. Consequently the patient signed up for every mission possible and flew his last 19 missions in 23 days. However, the elation he had anticipated upon completing his tour was absent. Instead, he felt "tired, lost and bewildered."

After he had returned to the United States, Captain R.'s wife commented that he seemed like a different man. He continued to experience fatigue, anorexia and bloating to such a degree that he sought medical help in 1944 for the first time. Captain R. continued to do duty as a communications officer in spite of his complaints until his release from the service in 1945.

**Employment History.** Upon return to civilian life, Captain R.'s symptoms of fatigue and depression assumed a cyclic quality. About a year after discharge the patient obtained a job selling insurance. His success as a salesman was rapid, and he became the highest paid salesman in his district the first year. He was runner-up his second year. Toward the end of the second year, he rather abruptly and inexplicably became tired and depressed. He finally quit the job and remained at home for a month doing nothing. Later he "found himself" and began selling lumber, again with considerable success. At the end of that year his depression returned. He quit his job and went home to bed. Although apparently not physically ill, he refused to leave his house for a period of 3 months, despite the fact that this created great financial and marital hardship. When this period passed, he secured a job as a manager for an elevator company and was performing successfully in this when recalled to active military service a year later in February 1951.

**Hospital Course.** Captain R. remained very depressed and made a serious attempt at suicide by hanging during the first week. His hospital course was repeatedly upset by his wife's firm intention to terminate their marriage. The patient showed at times a very labile mood, characterized by elation followed by depression, the change occurring very rapidly, even within one day. The patient was treated by regular interview psychotherapy, combined at times with sodium amyral narcosis. Particular areas which were explored were: the patient's hostility towards his mother, his identification with his stepfather, and his many traumatic combat experiences. In therapy he expressed overwhelming guilt that he had survived combat when so many of his buddies were killed. When discussing such emotionally-laden topics, he became angry, tremulous, and sometimes unable to walk. His mood fluctuations gradually diminished and the patient developed some perspective of his problems.

Captain R. was subsequently transferred to a Veterans' Administration hospital for further treatment. There was considerable discussion about the diagnosis in this case, but it was generally agreed that manic-depressive reaction, depressed type, was most appropriate.

### Case III

Captain J.M. is a 31-year-old observer who was hospitalized in April 1952 in an anxious and confused state.

The patient's illness began approximately 2 weeks before, when he received orders placing him on a combat crew shipment for ultimate assignment to Korea. The patient felt this was unfair, since he was older and had already flown in combat. He made no real effort to avoid shipment until he was arranging his affairs prior to departure. At this time, he found an inconsistency in his personal flight log. He became acutely agitated and went to see the Air Inspector, his Squadron Commander, and his Group Commander. He began to feel

that there was a plot against him. When ordered to fly to make up the unrecorded time in his flight log, Captain M. sought help from a civilian lawyer. The latter suggested that he consult a psychiatrist. With some reinforcement on the part of his commander, the patient did seek psychiatric advice.

Psychiatric evaluation at this time noted an anxious, suspicious individual who improved rapidly during a few days of observation. On the basis of this, Captain M. was returned to duty for trial on flying status. He appeared composed at this time and expressed the wish to "show them I'm not afraid." He was placed on a routine flight, however, at a refueling stop he broke down, cried, and asked to be returned to his base. After his return he again became composed and pressured squadron officials to give him "one more chance to prove himself." Arrangements were made for him to fly under supervision with an augmented crew. He controlled himself adequately on this next flight until the return trip, when he became seclusive, prayed, and handled his rosary. He felt himself possessed by the devil, thought that all members of the crew would die, and he would be left alone to land the plane. He asked the pilot and engineer many questions about flying the aircraft, then returned to his station where he sat praying, his head in his hands, for several hours. On return to his base, Captain M. was admitted to the Neuropsychiatric Service.

**Previous Personal History.** Captain M. was born of Italian parents, and Italian was the tongue spoken within his home. The father owned a restaurant and bar. Through the years the patient showed a strong attachment to his domineering, deeply religious mother. The patient was an average student and completed high school at the age of 18. For 2 years following his graduation, he worked in his father's bar, and led a small band in which he played trumpet. In 1941 the patient entered college, majored in business administration, and remained there until called to active duty in 1943. In 1944 he graduated from aviation cadet training as a Second Lieutenant, Navigator. He flew 35 combat missions with the Eighth Air Force in England from June to December 1944 in B-17s. Following his return to the United States in 1945, he was sent to pilot training, but was eliminated after 2 months for lack of progress. Following this, he was stationed on Guam in 1946 where he felt depressed and unhappy. On return to the United States for separation in 1947, Captain M. decided to extend his active duty and flew as a navigator on Pacific runs for several months. He was finally released from active duty in 1948 and remained on inactive status until February 1951. He spent the early part of this time at home, became engaged and married in 1949, and completed another year at college. Following his voluntary recall in February 1951, the patient was assigned to the northeastern part of the United States as a navigator flying transports on the North Atlantic routes.

**Hospital Course.** Examination on admission revealed a tense, apprehensive and suspicious man, whose stream of talk was tangential,

and incoherent. He was dejected, very anxious, and expressed many ideas of reference, feeling that people were trying to "get me" and "use my thoughts." He asked to see the Secretary of the Air Force to find out why his records had been falsified. He expressed also the feeling that he had a special relationship to God. He was frequently observed looking over his shoulder and stayed to himself during his initial period on the ward, smiling in a frightened, grimacing fashion.

The physical examination and routine laboratory tests were within normal limits. Psychological testing indicated that he was of high average intelligence. While on the psychiatric ward, the patient persisted in his withdrawn, suspicious behavior. He spent much of his time in his room kneeling before the bed praying for hours at a time. The patient felt that there was a plot to ridicule and harm him in which the nurses, his doctor, and the commanding officer all played a role. He asked that he be brought to trial quickly and "let justice be done." Following a period of observation and treatment, the patient improved and was recommended for release from the service with the diagnosis, 'paranoid state, acute, severe.'

#### SUMMARY AND CONCLUSIONS

This study was undertaken to seek any unusual manifestations of psychosis in the flyer. A series of 77 cases revealed a somewhat higher incidence of non-sct. zophrinic psychosis when it was compared with a recent series of new psychiatric patients taken from a cross section of the US Navy. The 'ifference, however, can be attributed to the older average age of the flyers.

The 30-40 age group of mature flyers contributed an appreciable number of patients to this series. Although in general the patients showed a moderate degree of predisposition, according to Air Force criteria, their records of past performance would certainly not justify any sweeping categorizing of the group as selection failures.

Medical personnel, especially the flight surgeon, performed well in identifying these patients and placing them under medical supervision. Illustrative cases are presented, however, to point out that there is a pre-psychotic borderland which creates great management difficulty. The earliest manifestations of psychosis in these patients have been cited to guide the flight surgeon and increase his sensitivity to this problem.

The psychotic flyer is a definite suicidal risk. Present USAF medical standards regard a history of psychosis as disqualifying for further flying assignments. This is well founded, particularly when one appreciates the difficulties involved in early diagnosis of an initial illness or a subsequent relapse.

## CHAPTER VIII

### PSYCHIATRIC NOMENCLATURE AND METHOD OF RECORDING DIAGNOSES

In military psychiatric practice, it is important to know how correct diagnosis is formulated. This chapter will outline the psychiatric diagnostic entities which are a part of the Joint Armed Forces Nomenclature(389) and will explain the method for making a psychiatric diagnosis. In addition, other questions involving the frequency and accuracy of diagnosis will be considered, and some of the special precautions involved.

#### GENERAL REQUIREMENTS FOR THE RECORDING OF PSYCHIATRIC CONDITIONS

The specific types of psychiatric conditions ('reactions') are sufficiently well-defined to justify their use without inclusion of the terms indicating the broad disorder groups. In recording a psychiatric condition, the lowest subclassification of the disorder will be used without being prefaced by the generic term. Thus, for instance, an 'emotional instability reaction' will be so recorded, without reference to the intermediate classification 'immaturity reaction,' or to its generic term 'Character or Behavior Disorders.'

In addition to the diagnostic term used for specifying the particular psychiatric condition, the diagnosis will also include terms qualifying the severity and chronicity of the condition. The term 'severity' refers to the seriousness of the condition. It should not be determined solely by the degree of ineffectiveness, since other factors, such as underlying defective attitudes, or other psychiatric or physical conditions might have contributed to the total ineffectiveness. Severity will be described as 'mild,' or 'severe.' Such terms as 'moderately severe' or 'mildly severe' are not sanctioned. The diagnosis will be further qualified as either 'acute' or 'chronic.' Outstanding or conspicuous symptomatology may be added to the diagnosis. Example: 'Anxiety reaction, mild, chronic, manifested by loss of appetite and insomnia.' If the reaction was severe and acute upon admission, but improvement or recovery was effected with treatment, this fact will be stated. Example: 'Situational maladjustment, severe, acute, improved.'

The general principles prescribed by the existing regulations for recording diagnoses apply to the recording of psychiatric diagnoses. The immediate condition which necessitated the current admission of the patient to the hospital will be considered as the primary cause of admission and so recorded. In cases of several related conditions simultaneously necessitating hospitalization,

the condition which is first in the chain of etiology will be designated as the primary cause. For unrelated conditions simultaneously necessitating hospitalization, the most serious condition will be recorded as the primary cause of admission. Within the limits of these general principles, the following specific conditions will be considered with respect to cases involving psychiatric disorders.

Unrelated Diagnoses. Physical and mental disorders may co-exist but be causally unrelated. In such instances all conditions will be listed as separate diagnoses, with the primary diagnosis being selected in accordance with the above paragraph.

Related Diagnoses. In some instances, the mental reaction, though related to the physical disorder, is not sufficiently developed as a clinical psychiatric entity to require a formal psychiatric diagnosis. For example, a patient with pneumonia may be apprehensive and tense. While this mental status should be described in the patient's clinical history or in his physical examination along with any other symptoms or signs, on the individual medical record the diagnosis will state only the nonpsychiatric condition.

There are other instances where physical and mental disorders coexist and where the physical disorder is a manifestation of the psychiatric condition rather than a separate condition. Whenever this is true, only the psychiatric condition should be listed as a diagnosis, and the physical condition should be shown as a manifestation. Example: Psychogenic gastrointestinal reaction, severe, chronic, manifested by mucous colitis and gastric hyperacidity.

Physical and mental disorders may coexist and be causally related, with both conditions being sufficiently marked and well-defined to justify separate diagnoses. In such cases, the causal relationship of the diagnoses should be indicated. The condition which caused or indirectly led to the other condition will precede the other condition in the order of diagnoses. This diagnostic procedure will be followed despite the fact that the psychiatric symptomatology is related to personality factors which existed prior to the immediate physical disease or trauma. For example, in a case in which paranoid state is precipitated by skull fracture, two diagnoses would be reported: (1) Fracture, skull, simple, etc. (2) Paranoid state, etc.

Definite pathological mental reactions may often be symptoms of organic disease of the brain. Such conditions may be regarded as only symptoms of the physical condition. However, if such a mental reaction is sufficiently pronounced to justify its recording as a diagnosis, it will be reported as an additional diagnosis. The diagnosis will state whether the reaction is nonpsychotic or psychotic. The diagnosis if psychotic will be amplified by one of the following descriptive terms as types: schizoid, paranoid, depressed, manic, confused, anxious, agitated, panic, delirious, apathetic. In the case of nonpsychotic reactions, resemblance, if any, to one of the

psychoneurotic reactions or character and behavior disorders will be recorded. If there is no resemblance to any of these, the diagnosis will be amplified by a description of manifestations such as irritability, memory defect, mild confusion, etc.

Whenever two separate psychiatric conditions exist, such as an antisocial personality reaction and a psychosis, both will be recorded. However, if a diagnostic entity (which would be recorded as the only diagnosis, if encountered as an isolated personality disturbance) is a part of a more extensive process or secondary to it, the primary condition will be recorded as the diagnosis, with the less important or secondary condition given as a manifestation. Examples: (1) Anxiety reaction manifested by somnambulism. (2) Passive-aggressive reaction, manifested by enuresis. (3) Asocial reaction type with sexual sadism.

Some psychiatric conditions are incompatible with certain other psychiatric diagnoses and will not be recorded as existing together, as for instance, psychoneurotic and psychotic reactions; acute situational maladjustment with psychoneurotic or psychotic reactions; or combat exhaustion with psychoneurotic or psychotic reactions.

Many of these conditions may progress from one to another, but are not present simultaneously. Similarly, only one type of psychoneurotic reaction will be used as a diagnosis in such cases, even in the presence of symptoms of another type. The diagnosis will be based on the predominant type, followed by a statement of its manifestations, including symptoms of the other types of reaction. Examples: (1) Anxiety reaction, with minor conversion symptoms. (2) Phobic reaction, manifested by claustrophobia, with obsessive compulsive symptoms, counting and recurring thought, etc.

ADDITIONAL REQUIREMENTS FOR RECORDING  
OF  
PSYCHIATRIC CONDITIONS ON CLINICAL RECORDS

Among psychiatric problems in clinical practice, the mere stating of the diagnosis and its qualifying terms is not sufficient, since it does not furnish enough information to describe their clinical picture. Thus, for example, a diagnosis 'anxiety reaction' does not convey whether the illness has occurred in a previously normal or in a previously psychoneurotic personality. Furthermore, it does not indicate the degree and nature of the external stress; nor does it reveal the extremely important information as to the degree to which the patient's functional capacity has been impaired by the psychiatric condition. Therefore, for certain conditions, a complementary diagnostic evaluation will be entered. This additional evaluation will consist of the following elements:

(1) external precipitating stress; (2) premorbid personality and pre-disposition; and (3) degree of resultant psychiatric impairment.

The complementary diagnostic evaluation for such cases will be recorded by the medical installation in which the medical officer has sufficient opportunity and information to do so. Whenever the medical officer lacks such opportunity or information, he should so indicate with the term 'unknown' or 'undetermined.' It is extremely important that the medical officers of the patient's own unit, and others who work with the case in its early stages, should indicate the external stress, even though they may lack opportunity to determine predisposition.

It is essential to recognize that the time element is all important in this evaluation: the diagnostic formulation on any particular date may (and in many cases should) be changed on a subsequent date. A patient may show marked impairment upon admission to a hospital, but a few days later may be able to return to duty with minor or no impairment. The diagnosis alone will not determine the disposition of the case without consideration of the stress, predisposition, and the functional incapacity, whenever these elements are reported. Under the present system the diagnosis becomes only one of four factors to be considered in determining disposition.

The following conditions require complementary diagnostic evaluation:

1. Transient personality disorders due to acute or special stress.
2. All types of psychoneurotic disorders.
3. Immaturity Reactions.
4. Psychoses.

No complementary evaluation will be made for character and behavior disorders, except for immaturity reactions; or, for mental deficiency and psychiatric disorders with demonstrable etiology or associated structural changes in the brain.

External Precipitating Stress. Under this heading, the external stress precipitating the condition is to be evaluated as to type, degree, and duration. The stress will generally refer to the environmental situation, military or otherwise, which is the direct cause of the reaction manifest in the patient. Unconscious internal conflicts will not be considered external stresses.

A judgment of military stress can be made most accurately by the medical officer of the patient's own unit, since living in the same environment qualifies him to do so. The opinion of the individual's commanding officer should likewise be of value. It may be more

difficult for the hospital psychiatrist to evaluate the stress to which the patient has been subjected. Whenever the stress cannot be determined, it should be recorded as either 'unknown' or 'undetermined.'

The degree of stress, whether that of combat, regimentation, training, isolation, or other type, must be evaluated in terms of its effect on the 'average man' of the group. It should not be presumed that a particular environmental stress is severe because one or even several individuals react poorly to it, since these individuals may have had poor resistance to stress. Stress will be classified as 'severe,' 'moderate,' or 'minimal.' 'Severe stress' is such that the average man, when exposed to it, could be expected to develop disabling psychiatric symptoms. 'Moderate stress' is such that a measurable causal relationship can be established between the symptoms and the precipitating factors. 'Minimal stress' is such that the average man could be exposed to it without developing psychiatric symptoms. Examples of recording stress:

1. 'Severe stress of 60 days continuous bombardment.'
2. 'Severe stress of 30 hazardous aerial combat missions.'
3. 'Moderate stress of serious chronic domestic problems.'
4. 'Stress unknown.'

Premorbid personality and predisposition. The description of the predisposition will consist of a brief statement of the patient's outstanding personality traits or weaknesses which have resulted from inheritance and development, and an evaluation of the degree of predisposition based on past history and personality traits. The degree of predisposition will be recorded as 'No predisposition.'

The phrase 'No predisposition evident' will be used when the patient shows no evidence of previous personality traits or makeup appearing to be related to his present illness, and when there has been no positive history of a psychoneurotic or other mental illness in his immediate family.

'Mild predisposition' is the term employed when the patient's history reveals mild transient psychological upsets and abnormal personality traits, or a defect of intelligence which, however, did not significantly incapacitate the patient, or did not require medical care. It will also be used when there is a past history of mental illness in the patient's family.

'Moderate predisposition' is present when the patient has a history of having partially incapacitating psychological upsets, abnormal personality traits or defects in intelligence which resulted in his social maladjustment.

'Severe predisposition' is the term to be used in the presence of the patient's definite history of previous overt emotional or mental illness or disorder.

Degree of psychiatric impairment. The psychiatric disability represents the degree to which the individual's total functional capacity has been impaired by the psychiatric condition. This is not necessarily the same as general ineffectiveness. Effectiveness in any particular job is a resultant of the individual's emotional stability, intellect, physical condition, attitude, training and so forth, as well as of the degree and type of his psychiatric impairment. Depending upon other circumstances a man with a moderate psychiatric impairment may be more effective than a man with a minimal impairment. Degree of impairment as used here refers only to ineffectiveness resulting from the current psychiatric impairment.

The degree of impairment at the time of original consultation or admission to the hospital will often vary from the degree of impairment after treatment. Impairment at the termination of treatment represents the residual or persistent impairment. Depending upon the degree of the impairment, it will be recorded as 'No impairment,' 'Minimal impairment,' 'Moderate impairment,' or 'Marked impairment.' The individual's capacity to perform military service will be used as the base-line for estimating the degree of impairment.

The term 'No impairment' will be used, whenever in the opinion of the medical officer, there are no medical reasons for changing the patient's current assignment or duty. An individual may have certain symptoms and yet have no medical reason for not performing full duty. For instance, symptoms of an anxiety state are present in the majority of military personnel engaged in combat; individuals returned to duty with mild symptoms may fail to function because of their attitude and not because of the severity of their illness.

The term 'Minimal impairment' will be used to indicate a slight residual degree of impairment in the patient's ability to carry on in his current assignment or duty.

'Moderate impairment' will be used to indicate a residual degree of impairment which seriously, but not totally, interferes with the patient's ability to carry on in his current assignment or duty.

'Marked impairment' will be used to indicate a residual degree of impairment which totally prevents the patient from satisfactorily functioning in his current assignment. It may be temporary or permanent.

Manner of Recording Diagnoses. The manner of recording of diagnoses on clinical records is illustrated by the following examples:

1. 'Acute situational maladjustment, manifested by anxiety, asthenia, and poor efficiency, severe; severe stress, due to loss of business property without insurance coverage; no predisposition evident; recovered under psychotherapy; no impairment.'

2. 'Obsessive compulsive reaction, chronic, moderate, manifested by counting, recurring thoughts, and ceremonials; minimal stress; moderate predisposition, with history of emotional upsets since childhood; moderate impairment.'

3. 'Psychogenic gastrointestinal reaction, manifested by nausea, vomiting, loss of appetite, and epigastric pain, moderate, chronic; moderate stress of aerial combat missions; moderate predisposition, with neurotic personality since childhood; minimal impairment.'

4. 'Schizophrenic reaction, hebephrenic type, severe, chronic; minimal stress (unit alerted for overseas); severe predisposition, with marked schizoid features since childhood; marked impairment (requires hospitalization).

Use of the Term: Not Suited for Military Service. Information and time are oftentimes inadequate to establish accurate diagnosis, as for example, the situation in which the flight surgeon is administering an ARA. (32) In many instances, the symptomatology and/or behavior may make disqualification of the registrant necessary, although not sufficiently well crystallized to warrant the diagnosis of a clinical disease entity. To label an individual with a diagnostic term in a brief examination without adequate data available is unscientific and unfair. Each clinical diagnosis will be based upon adequate historical and examination evidence. In those instances where insufficient data are available to arrive at a diagnosis and where the examiner's considered opinion is that the individual is not acceptable, he will indicate that the examinee is disqualified as 'not suited for military service.' The above phrase will be amplified by one of the following qualifications:

1. Because of severe antisocial tendencies. Instances of repeated conflicts with the law, severe truancy, a history of repeated stealing, check forging, combativeness and other similar antisocial tendencies.

2. Because of severe neurotic symptoms. Long-standing psychosomatic complaints, persistent phobias or obsessions, frequent and long-continued medical and/or neuro-psychiatric treatment, and recent or self-damaging somnambulism.

3. Because of severe emotional instability. Extreme fluctuations or excessive emotional states, or mental hospital treatment.

4. Because of severe schizoid tendencies. Extreme seclusiveness, pronounced mannerism, and queer or eccentric behavior.

5. Because of mental deficiency.

6. Other specific qualifying phrases may be used, such as sexual deviate, or other pertinent phrases.

The Reliability of the Psychiatric Diagnosis Itself: Hunt, Wittson and Hunt (381) compared the diagnoses of psychiatric cases at a Naval Training Center with later diagnoses at a Naval Hospital where cases were received without prior knowledge of the first diagnosis. The average agreement was only 32% when categories such as schizophrenia, manic-depressive psychosis, anxiety, psychoneurosis, hysteria, constitutional psychopathic state and inadequate personality were employed. If, however, classification were made into the broad categories of psychosis, psychoneurosis and behavior disorder, agreement rises to 54%. If the single category 'Unfit for service' was used, agreement rose to 93%.

The above study is generally consistent with the author's own observations (474) of agreement in psychiatric diagnoses during the approximate period in which the above study was made. There are many factors involved in such a low incidence of agreement, such as lack of indoctrination of medical officers, inexperience with a relatively new system of nomenclature and so forth. Certainly the situation with regard to diagnosis can and should be improved. But co-existing with this problem is another of at least equal, if not greater, importance: When should a psychiatric diagnosis be made, and when should it not be made? For the flight surgeon in the field who must transfer patients elsewhere for psychiatric care, the important factors are that he first recognize the need on the part of the individual for psychiatric care whether in clinic or hospital, and second, that he make the necessary and appropriate arrangements for obtaining that care. If such care involves aerial transportation proper precautions relative to the preparation of the patient should be made, but the exact diagnosis will not perform any useful service at this time except possibly for statistical purposes.

On the other hand, a patient arriving at a receiving hospital with a hastily-formed diagnosis tends to prejudice the physician, especially when the attached clinical record contains inadequate references to objective clinical findings. Further, patients may somehow gain access to their clinical records and to their specific diagnosis despite the caution of the attendant personnel. The realization on the patient's part that he has some disease entity, particularly when it employs terminology which is new and strange, can do much to aggravate the problem at hand, either by arousing anxiety, fixing symptoms and complaints, or by undermining the patient's confidence in his doctors.

Therefore, in practice, it would seem better for patients to be transferred with such diagnostic terms as 'Un diagnosed condition, manifested by ....' This permits a complete description of the particular findings in the case, alerts medical attendants to

precautionary measures, and still does not stipulate a definite diagnosis. A practical application of this point of view is seen in the fact that 'Combat exhaustion' is the only psychiatric diagnosis which is permitted in the evacuation of personnel from the combat area.

When patients are returning to duty after treatment and hospitalization during which time the chief problem was discovered to be a character and behavior disorder, there are also many advantages to the use of the term, 'Observation, psychiatric, no disease found,' since character and behavior disorders are not diseases or disabilities, but rather are prescribed by regulation as administrative problems. Making a diagnosis of 'Passive dependency reaction,' for example, confuses the line officer or commander who sees this as a diagnosis of a medical problem and then is reluctant to handle the matter as an administrative one.

Hence, it is apparent that there are many levels of completeness of diagnosis, and of accuracy as well. It is important for the flight surgeon to be familiar with all of these as they are of considerable importance in clinic, hospital or screening center. A complete, accurate psychiatric diagnosis contains invaluable information about the problem at hand, and encourages the medical officer to think in the dimensions of the present situation, the past history, and the basic endowments of the individual personality.

#### CLASSIFICATION OF PSYCHIATRIC CONDITIONS

##### 1. Psychotic Disorders:

###### a. Schizophrenic Reactions:

- (1) Schizophrenic reaction, simple type (3000).
- (2) Schizophrenic reaction, hebephrenic type (3001).
- (3) Schizophrenic reaction, catatonic type (3002).
- (4) Schizophrenic reaction, paranoid type (3003).
- (5) Schizophrenic reaction, latent (3005).
- (6) Schizophrenic reaction, NEC (3007).

###### b. Affective Reactions:

- (1) Manic-depressive reaction (3010).
- (2) Psychotic depressive reaction (3011).
- (3) Involutional melancholia (3012).

###### c. Paranoid Reactions:

- (1) Paranoia (3015).
- (2) Paranoid state (3016).

2. Psychiatric Disorders with demonstrable physical etiology or associated structural changes in the brain:
  - a. Psychotic disorders with demonstrable physical etiology or associated structural changes in brain (3040).
  - b. Nonpsychotic mental disorders with demonstrable physical etiology or associated structural change in brain (3041).
3. Psychoneurotic Disorders:
  - a. Anxiety reaction (3100).
  - b. Dissociative reaction (3110).
  - c. Conversion reaction (3112).
  - d. Phobic reaction (3120).
  - e. Obsessive-compulsive reaction (3130).
  - f. Neurotic depressive reaction (3140).
  - g. Somatization reactions:
    - (1) Psychogenic cardiovascular reaction (3150).
    - (2) Psychogenic gastrointestinal reaction (3150).
    - (3) Psychogenic respiratory reaction (3170).
    - (4) Psychogenic genito-urinary reaction (3171).
    - (5) Psychogenic skin reaction (3173).
    - (6) Psychogenic musculoskeletal reaction (3174).
    - (7) Psychogenic asthenic reaction (3175).
    - (8) Psychogenic reactions affecting other systems (3179).
  - h. Hypochondriacal reaction (3180).
4. Character and Behavior Patterns:
  - a. Pathological Personality Types:
    - (1) Schizoid personality (3200).
    - (2) Paranoid personality (3201).
    - (3) Cyclothymic personality (3202).
    - (4) Inadequate personality (3203).
    - (5) Antisocial personality (3204).
    - (6) Asocial (amoral) personality (3205).
    - (7) Sexual deviate (3206).
  - b. Immaturity Reactions:
    - (1) Emotional instability reaction (3210).
    - (2) Passive dependency reaction (3211).

- (3) Passive-aggressive reaction (3212).
- (4) Aggressive reaction (3213).
- (5) Immaturity with symptomatic habit reaction (3215).

- c. Alcoholism (except simple drunkenness or acute poisoning due to alcohol) (3221).
- d. Addiction (3230).
- e. Primary childhood behavior reaction (3240).

5. Disorders of Intelligence:

- a. Mental deficiency, primary (3250).
- b. Mental deficiency, secondary (3260).
- c. Specific learning defect (3270).

6. Transient Personality Disorders due to Acute or Special Stress:

- a. Combat exhaustion (3273).
- b. Acute situational maladjustment (3274).

## CHAPTER IX

### REACTIONS TO FLYING STRESS

The reaction patterns which men show under the stresses of flying would seem to be adequately covered by a straightforward discussion of adaptive and mal-adaptive responses, and of important stress factors which the flight surgeon should be alert to recognize. Unfortunately, the situation is not so simple. Stress reactions in the past have been viewed in a highly oversimplified fashion, so much so that at times the impression has been that this is 'the' psychiatry of aviation medicine. Such over-simplification has shown itself in such neologisms as 'aerasthenia,' 'aeroneurosis,' combat fatigue, operational fatigue, staleness, and more recently, 'fear of flying.' Underlying the use of these terms has been the implication that (1) all flyers are normal and psychically stable, (2) when the flyer develops emotional difficulties, these are caused by flying, and (3) the ensuing decompensation is somehow new, and peculiar to aviation. The matter has been further complicated by moral judgments formed at times when a flyer's decompensation permits him to escape combat or other especially hazardous assignments. This approach to the problem tends to overlook the great importance of the personality of the man himself, and its interaction with the stressful situation. Whitehorn(262) in particular has emphasized the diverse and hidden meanings of stress to the individual in the development of these reactions. This chapter will attempt to clarify these problems by presenting the various adaptive and mal-adaptive responses to stress, the etiologic factors involved, and preventive and management measures.

#### ADAPTIVE RESPONSES

The flyer knows that his occupation is dangerous. Injury and death always lurk in the background. These are the realities of the situation. But men continue to fly and gain great satisfaction from it. Such men basically have a strong love for flying. This feeling is complex and over-determined. From a stable, peacetime vantage point, such love of flying might seem deviant, but in an Air Force it definitely is not. The well-adjusted flyer also realizes aggressive needs, and in doing his job well, he earns the approval and support of his fellows. He feels that he is "on the team" and has a close identification with it. Having gained this position, he will not easily let his comrades down in time of need. The well-adjusted flyer operates in a state of positive balance: the love of flying outweighs the deterring forces. This positive balance, i.e., homeostasis, is hardly a static thing, however, and like any conflictual situation, it is laden with possibilities for psychic decompensation.

Much has been observed and written in recent years regarding the psychic defenses which successful flyers utilize. Some of these defenses are so clearly on a conscious level that to term them mechanisms of defense is arbitrary. For example, the flyer works hard at his profession in constantly keeping proficient and abreast of new developments. Not to do so, he recognizes, is to court disaster. He usually acknowledges fear openly, and accepts this as an unpleasant by-product of his work. Facetiously he may refer to flying as moments of absolute panic, interspersed among hours and hours of sheer boredom.(475) Usually an active person, he is inclined to meet fear-provoking situations head-on, and to overcome them by direct aggressive action. It is this point of view which underlies such oft-given advice as: the best thing to do, if you're shaken up by a crash, etc., is to get out right away and fly so much that you don't even think about your fears any more.

Bond has emphasized the importance of the mechanism of denial of unpleasant reality from his observation of aircrav in the Eighth Air Force in England in World War II.(232) These men shared a healthy belief in their own immortality which was abetted by an absorbing devotion to their aircraft and leaders. They had an altered view of death, which had become their daily companion: near fatalities were amusing, dangerous flying was done deliberately, and helped to prove their invulnerability. The newcomer to a combat unit found his associates gleefully establishing claims on his personal belongings because he was not expected to be around very long. These veterans of dangerous daylight bombing of Europe went out of their way to minimize the hazards of their duties and looked with awe upon the submariner and the infantryman. Unreality was strengthened by many factors: the crews often could not see the bombed target. They were attacked by planes, not men, and there was a chivalrous, impersonal attitude rather than fighting rage. They never saw the enemy mutilated, only themselves. The air war was intermitting and irregular in its prosecution, and the crewmen saw neither victory nor defeat, capture nor surrender. The airman's war was practically silent, and for the fighter pilot it was often lonely. Sometimes denial was extreme as, for example, the pilot who successfully denied to himself that he was engaged in combat, or depersonalized the situation so that he could believe his actions were really being carried out by someone else. Such reactions are sometimes encountered among flyers who have been in crashes, and who recover to hear the details with utter disbelief. The author recalls one very successful pilot who became acutely psychotic following a serious crash in which several lives were lost. During lucid periods, the pilot recalled the crash, and particularly his helplessness in the face of materiel failure. At other moments he would lapse into manic behavior and deny that the incident had ever occurred.

Symbolism is an acceptable mechanism of defense which is more commonly encountered in combat flying. In commenting on the rabbit feet and other paraphernalia with which combat flyers girded

themselves, Bond has likened the situation to the child taking a toy animal to bed to guard him in the darkness.

#### MALADAPTIVE RESPONSES

When the stresses of flying are particularly great one can expect to see reactions with such prevalence that they are considered 'normal.' Hastings, Wright and Glueck(24) found this in their study of successful members of aircrew in the Eighth Air Force in World War II. Tension and anxiety were universal. 95% of the men developed definite stress reactions and 34% suffered severely. These crew men frequently and consciously showed aggressive behavior. Such outbursts usually occurred during periods of relative inactivity. 37% of the men experienced episodic depressions often with a major self-accusatory content. A rebellious attitude toward ground discipline and graphically obscene language were also part of their aggressive patterns. Virtually all stated that they were relieved of tension by actual combat, no matter how dangerous or difficult it was.

The average flyer enters flying with the outspoken conviction that it is not a dangerous profession. As time goes on, evidence to the contrary is presented to him, and he next expresses himself by saying, "It won't happen to me." As further time elapses, and as evidence continues to be presented depending upon the number of traumatic experiences undergone he may eventually develop a fatalistic attitude in which he says, "It will happen to me, it's only a matter of time." As still more time elapses, the fact that it does not happen, in itself, becomes as disturbing as would the certain knowledge that death would occur at a certain time. When the individual has reached this frame of mind, he takes off on every flight with the expectation of disaster. If nothing disastrous occurs he eventually experiences a feeling of disappointment and guilt which may lead him to become careless and seemingly court death. An individual who is in this mental state is an optimum subject for the precipitation of an acute stress reaction. Bond cites as of special importance such factors as identification with a dead or wounded companion on the basis of unconscious aggression ("Thank God it was my friend and not me"). Closely knit crews favor this and Bond noted that many flyers learned that it was safer not to have any friends. It was extremely traumatic for the crewman to be intimately involved for many hours with a mutilated or dying man if strongly attached to him and endangered by his incapacity.

As the flyer passes through these stages toward eventual decompensation, the flight surgeon should look for tell-tale signs to assist him in early case-finding: change in appearance, talk and behavior; loss of keenness for flying, loss of efficiency and alcoholic excess. Insomnia is a frequent accompaniment, often with vivid and terrifying dreams in which the flyer is the central figure watching his own death or injury. He may dream of mid-air collisions, of

catching fire, spinning in, or being unable to land. Physical fatigue, weight loss and exaggeration of previously minor disabilities are common. In recent years attention has shifted to the development of stress indicators in the form of psychological and biochemical tests.(479,480)

The flyer who is decompensating shows marked personality changes: he is introspective, feels different, inadequate and guilty. He shows a startle reaction to minor stimuli, and meets his hostile environment with irritability. If overwhelmed by his feelings of guilt and inadequacy, he may become deeply depressed. The facies of such a patient has been described by Hastings, et al as having a 'hunted' look. In general the reaction takes a somewhat opposite form from the patient's usual personality.

A word of diagnostic caution should be introduced at this point: a flyer who has developed signs of maladaptation along the lines noted here should be carefully studied to rule out physical factors in his illness.

Extreme combat situations are characterized by a stress reaction which is seen much less commonly in other flying situations: this is the phobic reaction, a dramatically crippling phenomenon which is reminiscent of the reflex avoidance one finds in experimental animals which have been trained and rewarded to carry out a task, and then are punished and frustrated for following this same pattern. This 'conditioning' process in flyers may be sudden and overwhelming. It may, on the other hand, develop insidiously out of many lesser traumatic experiences, none of which, by itself would be sufficiently intense to create an avoidance response. The reaction is characterized by irrational, morbid fear of exposure to a feared object or situation. The latter may be sharply demarcated and encountered only in certain aspects of flight, or it may be so diffuse that the flyer cannot go near a flying field. This fear response is primitive, rigidly stereotyped and not amenable to logical argument. In combat, phobic reactions may involve flak, searchlights, flying with a bomb load aboard, bailing-out, etc. Among flyers as a group, claustrophobia, fear of heights and of particular aircraft are commonest. When encountered in a situation of lesser stress, it is likely that the phobic reaction is not primarily related to flying, but is, instead, a chronic psycho-neurotic disorder aggravated by a special situation arising in flight. Claustrophobic reactions to being enclosed in weather or darkness, to the wearing of oxygen masks and to being in an altitude chamber are rather common examples. A phobic response may be produced in a flyer who is placed in a crew position in which he feels his self-reliance is compromised. Avoidance of flying over water is an interesting example of the irrationality of the phobia since it may occur when the flyer clearly understands that there is safety while over water and away from enemy attack. Underlying the phobic response there is a common theme of obsessive need for control which

is probably a prerequisite to the development of the reaction in all but the most severely traumatized cases.

The manifestations of stress reactions are influenced by the degree to which the particular cultural environment can acknowledge the presence of fear. For example, among those cultures in which fear reactions in combat are punished by death, such phenomena as combat anxiety or conversion reactions are not seen: the drive for self-preservation precludes this. One does find among flying personnel in such prohibitive situations a leakage of disguised forms such as headache, black-out spells, intolerance of g-forces, disabling minor injuries, vertigo, airsickness, disabling barotrauma, and the like. This is particularly true in flying training, where a premium may be placed on courage and intestinal fortitude. In the combat setting, where fear is openly appreciated, it may be possible to express fear without danger of reprisal. The society's attitude toward the expression of fear is not the only factor involved, however. Many individuals, especially young vigorous males, are prevented by their own pride from acknowledging fear. They will insist vehemently that they do not wish to be suspended from flying. With time, they begin to feel that they are unfair to their crew. When their inability to carry on has become obvious, even to themselves, they will describe the fear and stress which have produced their symptoms.

#### ETIOLOGY

Unravelling the causes of stress reactions among flyers may at times be relatively simple and traceable to a single overwhelming episode. Such cases are dramatic and impressive, but unfortunately not characteristic of the stress reactions usually encountered. The flight surgeon must approach each case on an individual basis and assign weight to each of three important areas: primary load (conditions of flight) factors, secondary load (environmental support) factors, and the personality of the flyer himself. As the flying situation changes from year to year, the relative importance of these factors waxes and wanes. The stress reactions, however, continue to manifest themselves in much the same form.

Load factors were uppermost in World War II. This would be expected in the face of severe operational requirements and casualty rates. The Eighth Air Force reported neuropsychiatric losses during this period of 20 per 1000 men per year. Table 3 shows the classification of 1751 cases reviewed by the Medical Board of the 1st Central Medical Establishment of the Air Force (ETO) during World War II. The Royal Air Force incidence of neurosis per 1000 men per year was 32.(229) Complete figures for the Korean War are not available at this time, however, the author was impressed by the importance of secondary load and personality factors. Table 4 indicates the scope of psychiatric problems as obtained from Care-of-

Flyer Reports from the Far East Air Forces during 1951. It should not be implied, however, that flying under conditions of limited warfare or peacetime are not both hazardous and arduous. The stresses of flying training are great, and accident rates a constant problem. Recent years have witnessed a tremendous program of transition to jet aircraft and this has added to the appreciable load of any type of flying operation. Combat readiness under otherwise 'peacetime' conditions has characterized many units of the Air Force, and has lacked the support of a wartime psychology on the part of the populace.

TABLE 3

Classification of 1751 cases reviewed by the Medical Board of the 1st Central Medical Establishment of the Air Force (ETO) during World War II

	1751	1751	1751
<b>Total</b>			
<b>Psychiatric Conditions</b>	<b>1267</b>		
<b>Psychoneurotic Disorders:</b>		<b>1258</b>	
Anxiety reaction			<b>1216</b>
Conversion reaction			<b>15</b>
Dissociative reaction			<b>11</b>
Somatization reaction			<b>11</b>
Reactive depression			<b>3</b>
Obsessive compulsive reaction			<b>2</b>
<b>Character and Behavior Disorders:</b>	<b>8</b>		
Emotional instability reaction			<b>4</b>
Antisocial personality			<b>2</b>
Schizoid personality			<b>1</b>
Homosexuality			<b>1</b>
<b>Psychoses without known organic etiology:</b>	<b>21</b>		
Manic depressive reaction			<b>10</b>
Schizophrenic reaction			<b>8</b>
Paranoid state			<b>1</b>
Psychosis, unclassified			<b>2</b>
<b>Conditions with Psychiatric Implications</b>	<b>168</b>	<b>168</b>	
Airsickness			<b>24</b>
Post-concussive syndromes			<b>17</b>
Alcoholism			<b>6</b>
Migraine			<b>8</b>
Epilepsy			<b>8</b>
Adies Syndrome			<b>1</b>
Meniere's Syndrome			<b>1</b>
Catalepsy			<b>1</b>
No diagnosis (functional disorder)			<b>102</b>

Table 3 continued on page 76

TABLE 3 (Continued)

Non-Psychiatric Medical and Surgical Conditions	296	296
Sinusitis	76	
Aero-otitis	53	
Decompression sickness	22	
Frostbite	18	
Residuals of old injury	11	
Visual defects	21	
Others	95	

From Carlson and Rafferty(233)

TABLE 4

## The Scope of Psychiatric Problems as Reflected in Care-of-Flyer Reports from the Far East Air Forces During 1951

I. Diagnosis:	
Anxiety reaction	123
Combat exhaustion	22
Acute situational maladjustment	18
Other psychoneuroses	8
Somatization reactions	15
Character and behavior disorders	5
Psychotic reactions	5
	196
II. Days lost for personnel not transferred to other medical facilities: average 17.1	
III. Ratings:	
Pilots	93
Navigator observers or bombardiers	34
Bombardiers	16
Radar operators	7
Engineers	7
Radio operators	9
Gunners	11
Other	19
	196

Primary Load Factors. These are factors inherent in the flying situation itself which may operate to produce psychic decompensation. Bond has pointed out that many of these factors are particularly undermining because the flyer suffers enforced passivity: he cannot be prepared for them, nor can he be certain he will be able to take corrective action.

1. **Catastrophes.** These include crippled aircraft, engine failures, fire in the air, horrifying sights, personal losses or injuries, loss of important leaders, unavoidable or unexplained crashes unrelated to pilot error, immersion in the sea, or any factor which matches the specific fears of the individual.

2. **Enemy Defenses**, including heavy flak, which aircrew shoot at for relief; and fighter opposition. Crews gain a psychological lift, however, from successful completion of a raid in spite of severe opposition.

3. **Weather and Scheduling.** Anticipation of the combat mission is far worse than the mission itself. For this reason, last-minute cancellation of missions, and repeated cancellations are especially stressful. Added frustration occurs when crews are unable to see their targets in bad weather. Weather is a particular obstacle for fighter-interceptor aircraft when required to 'scramble' from and return to a closed-in field.

4. **Crew Position.** This is particularly stressful when a crewman is assigned to a position which conflicts with his need to be active. The Royal Air Force in World War II(229) found a direct relationship between the incidence of neurosis attributed to flying duties and the duty assignment: air gunners were highest with 5.2 per 100 man-years, pilots and navigators were lowest with 2.3. Grinker and Spiegel(232) made similar observations regarding the United States Air Force.

5. **Physical Factors** include fatigue, loss of sleep, inactivity, cold, heat, high altitude flying and uncomfortable personal equipment.

**Secondary Load Factors.** These are factors within the flyer's environment which motivate him negatively and lessen his feeling of support. Such factors have a capacity for lowering the flyer's resistance to the demands of his duties. Among these are lack of effective leadership, lack of confidence in other crew members or key personnel, poor or inadequate crew training or discipline, or other defects in the over-all personnel program. The world political situation has important reverberations upon the flyer: where there is no war to serve as a motivating stimulus, he may fail to see tangible reasons for taking risks. Carrying on wartime operations in a peacetime setting places a severe burden on the flyer. His need for close unit identification is compromised by his obligation to his family. It is severely stressful for a flyer to carry out an exhausting 20-hour jet bomber mission, then return home to try to relax in the 'bosom of his family.' The burden upon the flyer's family in perpetuating this 'fiction' is also extreme. The reactions of the family group in such a distorted situation and the feed-back effects on the flyer become as much a part of aviation medicine as protective equipment and annual physical examinations.

Secondary load factors may at times reach epidemic intensity. During the early part of the Korean War there was considerable mal-adjustment among aircrew being trained for combat bomber duty. Schulze(255) has reported on this problem in detail, to which the author adds certain personal observations. The situation began with failure of personnel selection. The men who were called into the program were, for the most part, combat veterans of World War II, with all of the crashes, bail-outs and prisoner of war experiences that this implies. Many were grossly unsuited psychologically with phobic reactions rekindled by return to active flying duty. Where the man was still psychologically adaptable to combat flying, he sometimes found himself with a wife who was not. The men were more mature and settled. Some felt their age, felt the new aircraft were too threatening or felt inadequate for leadership roles. Upon defective selection were superimposed inadequacies in other aspects of personnel management: return to active duty meant transfers, shipping of household goods, absences from families, fouled-up pay and other records. In this situation, all of these factors became magnified in importance. Finally, the war itself did not engender patriotic fervor. The crisis became explosive when it became known that existing personnel policies bestowed their approval upon the crewman who professed to a 'fear of flying.' Since grounding under these conditions was socially acceptable, men with motivations of all kinds toward avoiding flying duty converged upon the 'fear of flying' bandwagon. Personnel policies were abruptly reversed and 'fear of flying' became punishable. But the damage had already been done, and the term 'fear of flying' had ceased to have either an identity or a medical meaning.

Personality Factors. Those factors within the individual which predispose him to breakdown under the stress of flying are chiefly character and behavior disorders, or long-standing psychoneuroses which become crippling in the flying environment. Indeed, flying stress is largely coincidental in these individuals and its presence can be highly misleading. Flying brings such individuals face-to-face with inner problems which dissipate the energy required for effective flying. This is not to say that the presence of these disorders is always incompatible with successful flying. It is an important part of selection research to determine those traits which interfere least or contribute most to an effective adjustment.

Royal Air Force statistics from World War II(229) provide some insight into the magnitude of these internal problems: it was found that neuroses among flyers were equally distributed between men who had not flown on operations, who had started their tour, and who had considerable experience in operations. 5% of cases arose in men who had not flown at all. Over half the cases had not been exposed to more than slight stress while flying, and nearly a third to none at all.

## PREVENTION

Preventive measures will be considered in detail in a later chapter, however, it is appropriate here to discuss certain measures which have been valuable in reducing personnel losses under stressful flying conditions.

Leadership is of uppermost importance. The astute commander will do everything in his power to foster strong feelings of group identification. Particularly close attention must be paid to environmental problems, so that the aircrrew can rightly feel that everything possible is being done to better their lot. Support must be given by the commander to such matters as living quarters, domestic problems, recreation, leave policies and athletic activities. Discipline should be firm and consistent but enlightened and reasonable. Aircrrew must have confidence in their aircraft and its maintenance. Missions should be reasonably spaced where possible and the efforts of the men adequately recognized. Briefings should be factual, realistic and short. Cancellations of missions should be announced as early as possible.

Training provides positive emotional conditioning and increases the confidence of aircrrew as much as any single factor. Knowledge produced by sound training pushes back the boundaries of the unknown and reduces fear. Because effective training involves emotional readjustments, the timing of the various steps in the training program should be closely observed. Training should be sufficiently vigorous and realistic to screen out men who are not equipped to carry the load. It should not be so arduous, however, that it overstresses otherwise healthy crewmen.

Selection measures have been disappointing when distant goals of combat and operational flying have been the focus of interest. Carlson and Rafferty(233) in World War II found that among men who suffered psychoneurosis, predisposition was present in four-fifths. However, one-fifth of the normal population also showed similar predisposing factors. The Royal Air Force(229) found that approximately 15% of the normal flying population showed evidence of predisposition to psychological disorders. In 3% the predisposition was so great that it would have led to rejection had it been recognized. Among flyers who developed psychological disorders, these figures were 68% and 16%, respectively. It was therefore considered uneconomical to reject any except the severely predisposed individuals - a rejection rate of 3% or less. In 1945, the reliability of the psychiatric method of diagnosing psychological disorders in RAF flying personnel was investigated by statistical methods. A fair degree of agreement in psychiatric diagnosis was found in the assessment of severe predisposition, but in the other degrees of predisposition the disagreement was such that it was decided that the psychiatric assessment per se should not be used in selection of aircrrew at entry but should be regarded as one medical factor

to be taken into account by the selection board in the final summing up. A recent study by Sparks and Niess (293) indicates that a comprehensive study of the personality structure of successful aircrrew members has yet to be carried out. Harris et al (476) have studied psychiatric aspects of infantry combat in the Korean War, and found that situational factors were as important as genetic and developmental personality factors. One ground battle was studied in detail and it was possible to compare the performance of men known to have had psychiatric consultation with the performance of men who had not. In this battle, 26 men became psychiatric casualties, and none of these had ever for any reason been to see a psychiatrist before. None of a group of 39 men who had previously seen the division psychiatrist became psychiatric casualties during this battle.

Medical Support, rendered by the flight surgeon, is a key factor in the preventive program. The latter must observe the flying situation closely, and fly with his men often enough to assess primary load factors. He should mix freely with them in the crew rooms, the hangars, the air and the messes. Although a participant in games and parties, he should be mature enough to work with domestic and social problems. A valuable technique for the flight surgeon is to keep a confidential card file on each of his men, beginning with his impressions from the time the man enters the unit. In informal meetings, he can observe individual crews and evaluate their adjustment. Close liaison with the commanding officer will also enable the flight surgeon to implement his own contributions to a preventive program, although this intimate relationship should be outside the knowledge of the crews.

#### MANAGEMENT

When a flyer decompensates under stress, his plight is viewed by those about him with mixed emotions. Those who bend under the growing pressures of their flying duties may unconsciously feel hostile because they cannot permit themselves to solve their problem similarly. On the other hand, fellow flyers may feel overly sympathetic, perhaps in anticipation of their own failure. Bond has commented on the attitudes of various personnel toward phobias for flying: successful combat crewmen tended to be understanding. Hostile feelings, however, were expressed by men approaching combat, by non-combatants and men on the verge of breaking. The reactions in these men are highly personal and distinctly human. They could be understood and dismissed, but for one feature: the flight surgeon shares them. If the flight surgeon feels hostile or overly sympathetic, this will show itself in decisions which his flyers as a group will not understand. The flight surgeon will do serious damage to the morale of his unit if he provides or withholds medical intervention on the basis of his own maladaptive responses to stress.

The flight surgeon is on safest ground if he bases his decisions on sound medical principles. He must attempt to evaluate each case and assign appropriate weight to load and personality factors. It is understandable that in many difficult situations he may wish to abdicate this responsibility and refer the problem to the psychiatric consultant. Unless there is very close liaison between both parties, as well as intimate understanding of the local situation, such abdication will create more problems than it will solve. If the flight surgeon can maintain an attitude of expectation that his men will continue to carry on, combined with an exploratory viewpoint toward their reactions, he is well prepared to carry on treatment and disposition. He may call upon the psychiatrist for advice and support, but the responsibility for his men should remain in his hands.

As has been noted previously, practically all men in a unit will show signs of stress if the operational requirements are severe. In such a situation, the flight surgeon must vary his psychotherapeutic level. Exploratory techniques will for the most part be not only useless but may even undermine the defenses of the flyer at a time when he needs them most. It has frequently been observed in combat that the inquisitive interviewer can obtain psychopathological material from men who in other settings would have little to contribute. Such a history is a reaction to the unsettling environment of combat, and not an area for the flight surgeon to explore. Rather, in such cases, he will employ a suppressive approach and encourage the flyer to cover up his problems. Since he is intimately associated with the flyer's situation, the flight surgeon can best determine the psychotherapeutic level upon which he should operate. In the case of phobias, for example, the treatment should be directed toward immediate problems, since long-term uncovering techniques directed toward unconscious early conflicts are not feasible. In general, then, psychotherapy among trained flyers in situations of stress rests heavily upon support, reassurance, rest, appropriate medication and an expectant, optimistic attitude.

Among men in flying training, the same approach should be used, with the exception of the amount of personal time which the flight surgeon should devote to the case. In this respect, the training period is a selection process, and the flight surgeon will recognize that the shorter the period of flying before breakdown, the poorer the man's prognosis for effective performance.

The flight surgeon should be prepared to deal with the shock reactions to acute psychic stress which are an accompaniment of aircraft accidents. Flyers who have survived harrowing experiences should be scrutinized carefully for psychic shock. It is well for the flight surgeon to have a planned operating procedure prescribing observation and treatment of flyers following accidents, even though they are physically uninjured. Treatment in such cases may vary from simple observation to heavy sedation for a period of several

hours. Every effort must be made to insure that the flyer's surroundings are restful and quiet, and arrangements should be flexible enough so that hospitalization is not compulsory if there are other settings in which the flyer can be treated efficiently. Shortly after an accident, the flyer is beset by a swarm of investigators. The advisability of admitting these personnel to query the flyer during the shock period is questionable and a matter to be ruled upon by the flight surgeon. It should be emphasized that this period of recovery is a very real one, although the flyer may attempt to minimize or deny it. Insomnia, nightmares and increased tension may persist for days or weeks after an accident, but not be communicated. It is wiser to assume the presence of this reaction than to dismiss it, particularly as the flyer reaches the point where flying duties are under consideration.

#### RETURN TO DUTY

Assessment of the flyer's readiness to resume flying duties following a stressful episode is a matter which requires keen observation and intuition on the part of the flight surgeon. In such decisions, he is torn between an optimistic desire to get his men back in the air again, and concern lest the flyer find himself too abruptly in another situation in which an overload of anxiety will cost him his life. Bond has noted the importance of avoiding further trauma when the Ego is recuperating. At such a time the Ego is weakened and less resistant. Significantly, however, only the most neurotically predisposed flyers show serious disintegration as a result of a single accident. During the Korean War questionable cases were for the most part restored to flying duties as quickly as possible. Their long, intensive training and experience were regarded as adequate to enable them to overcome whatever stresses they might encounter in combat operations. From a standpoint of flying safety, these men were considered to be, if anything, safer flyers than their colleagues. Whether they were as effective in their duties is not known. Lifton (410) has provided insight into these policies in terms of patients studied during the Korean War. It is difficult to evaluate the worth of such a policy because of the peculiarities of the Korean War when compared with World War II.\* Among medical observers of this policy in Korea, it is the author's impression that most felt such a viewpoint was realistic and successful.

\*Culpepper(477) has reported the following score from the start of the Korean War to 1 Mar 53: Far East Air Forces losses - 711 USAF aircraft (jets to ground fire - 217, in aerial combat - 76, to other causes - 65; props to ground fire - 270; in aerial combat - 21, to other causes - 54).

United Nations aircraft losses were 73; 104 land-based US Marine Corps aircraft were lost.

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In those rare instances in which the flight surgeon feels that a flyer is consciously attempting to avoid his flying responsibilities, it is wise not to remove him from flying at all. Rather, observation should be conducted while the man continues to fly. To remove him from flying in such a case may fix symptomatology and provide a convenient medical justification for the flyer's failure.

The Royal Air Force has provided interesting figures(229) regarding the prognosis for return to duty of men who have broken in combat. The determining factors were considered to be the degree of predisposition toward neurosis present in the flyer, and the location of the treatment facility. Although the degree of hazard and stress encountered in the operational tour appeared to have precipitated the breakdown, it did not affect the prognosis for full flying duties.

For the Royal Air Force as a whole, 22.5% of men who had broken were restored to full flying duties. Limited flying was permitted in 3.5% of cases. Suspension from flying occurred in 72%, and 1.9% were hospitalized. When treatment was carried out by the unit medical officer, however, 35% of a group of 286 cases were returned to full flying. (One small group treated at Base level showed an 80% return to full flying duties.) Suspension from flying was necessary in 20.5%, and 'executive' flying was permitted in 31.5%. Hospitalization was necessary in 1.0% of cases.

Treatment results were also reported by an RAF neuropsychiatrist who treated a large group of crewmen who had completed more than 100 operational flying hours. Of the group, 46% were restored to full duty, and 12% to limited flying. Within this group were 272 men who showed no predisposition to neurosis. Among them, 71% returned to full flying duties, as compared with only 14% of men who were judged to be severely predisposed to neurosis.

Hastings, et al(244) divided the men who broke into categories: operational fatigue and psychological failure. 43 cases of operational fatigue were treated by narcosis therapy. Of these, 70% returned to combat flying. All but 3 of a group of 26 psychological failures also received narcosis therapy. 19% of these returned to combat flying. These figures are seen to be in close agreement with the above findings of the Royal Air Force.

\*Continued.

Enemy losses: Destroyed - 780, including 611 MIG-15s; probably destroyed - 139, including 112 MIG-15s; damaged - 853, including 775 MIG-15s (virtually all enemy losses were in air-to-air combat).

Other USAF activities: sorties flown - 604,017; vehicles destroyed - 64,579; railcars destroyed - 8,612; bridges destroyed - 628; tanks destroyed - 1,140; tunnels - 770; and troop casualties inflicted, 144, 795.

The USAF casualty breakdown for the Korean Campaign (473) includes 544 dead, 47 wounded in action and 671 missing in action.

Grinker and Spiegel(242) have reported the disposition of 820 returnee flying officers who were discharged from the Don Cesar Convalescent Hospital in the Zone of the Interior during World War II. 66% of these men were restored to full flying. Of a group of 1960 flying enlisted men, only 22 9/10 returned to full flying. The investigators explained the discrepancy in disposition of airmen as due to lower selection standards, less understanding on the airman's part of the need for early treatment, less personal attention from the flight surgeon and absence of a long term interest in aviation.

Table 5 shows the results of treatment during a portion of the Korean Campaign. The figure of 74.5% returned to full flying duty is somewhat better than figures from World War II, indicating a lighter operational load, and also medical support which had profited from the lessons of World War II.

Long-term follow-up evaluation of the effects of combat-induced psychological reactions is beclouded by changing cultural and medical standards of diagnosis and treatment. Among World War II returnees, the most frequently persistent symptoms were restlessness, irritability, aggressive behavior, fatigue, lethargy, insomnia, subjective anxiety and personality changes. Carlson and Rafferty(233) conducted a follow-up study of 389 flying officers who responded to a questionnaire after 4 years. Of the group, 53% were well enough not to visit a physician for residua of their wartime reactions. The duration of symptoms before diagnosis and treatment were found to have a direct bearing on the persistence of residual effects.

#### DISPOSITION POLICIES

The military aviator has from earliest times filled a much sought-after and highly voluntary role. In the days of the US Army Air Corps the problem was one of keeping men out of aviation if they did not seem suitable. As aviation grew to tremendous proportions in World War II, it was inevitable that the available supply of physically fit and properly motivated young men would be exhausted. When hostilities erupted in Korea in 1950, the crisis in procurement of flyers reached a peak. In such an international crisis, the Air Force called upon the men it knew were best qualified to prosecute the air war. These men performed with great courage and steadfastness, in spite of severe disruption of personal plans created by recall for further service in a war which generated little enthusiasm. This personnel crisis was further aggravated by the fact that the Air Force was undergoing a drastic shift from propeller to jet type aircraft, and the average age of its flyers had climbed to over 30 years. The traditional policy of looking upon flying status as a voluntary matter was put to the test during the period 1950-1952 among aircrew being trained for combat, as has been noted previously.

TABLE 5

Disposition of Psychiatric Cases from Care-of-Flyer Reports,  
Far East Air Forces - 1951

Full duty	146	(74.5%)
From DNIF	115	
From quarters	9	
From hospital	22	
Indefinite medical suspension	15	( 7.5%)
Indefinite administrative suspension	2	( 1.0%)
Transferred to hospital	31	(16.0%)
Undetermined	2	( 1.0%)
	196	

In the face of this crisis, a new Air Force policy was formulated and incorporated into Regulation 36-70. This stipulated that training leading to an aeronautical rating obligated the officer concerned for crew assignments, including refresher training. In this and other regulations, the basis for removal from flying status was set forth: medical problems were to be handled medically, administrative problems, administratively. A new category, 'Fear of Flying,' was created which was to be diagnosed with the assistance of the flight surgeon and then processed administratively, often with punitive action. In evaluating such cases, the flight surgeon was directed to treat any flyer who was found to have a psychoneurosis directly related to a 'fear of flying,' and upon completion of treatment, the flyer was to be physically qualified to fly. Refusal to fly would then be handled through administrative channels.

In practice, the medical aspects of AFR 36-70 have been implemented in much the same manner as disposition of personnel in non-flying categories. In fact, had such parallel procedures been appreciated, the formulation of 'fear of flying' would not have been necessary. In evaluating the man who shows a maladaptive response to flying stress, the flight surgeon assesses the operational load and looks for those clinical conditions which are his responsibility: organic and functional psychoses, non-psychotic brain syndromes and psychoneurotic disorders. If such conditions are found to exist, the flyer passes into medical channels. If, however, no disease is found, or if the subject has a character and behavior disorder, administrative channels are employed. Not infrequently, the flyer with a character and behavior disorder will show transient, overlying psychoneurotic symptoms. It is appropriate in such cases to offer whatever medical support is needed to produce a remission of symptoms, but eventual disposition will be administrative in nature. Under stress of imminent medical qualification for return to flying, such individuals may show persistence of symptoms. The flight surgeon will have had an opportunity during the period of observation, however, to assess the

importance of the underlying character structure. It should then be made clear to line authorities that medical responsibilities have been met.

Phobic reactions may create unusual problems for the flight surgeon since the patient may seem quite normal on the ground and away from the feared object or situation. Line authorities may find it difficult to understand why such an individual is a medical responsibility. In such instances, the flight surgeon should assemble his facts with care, document the development of the phobia and, if possible, observe the patient's reactions when confronted with the feared object. In some cases the phobia may be of less importance than an underlying character and behavior disorder, so that administrative disposition will be appropriate. The over-riding consideration in these matters is to help the individual in a way which is not detrimental to, and is understood by the group. Bond has recommended that disposition policies should concentrate on: (1) removing casualties from the group, and (2) exerting control over their assignments and promotions. In particular, methods should be found to get rid of the legalistic, moral attitude which, in World War II made it so difficult to ground a man administratively that the procedure was avoided.

Inherent in administrative policies such as these regarding flying duties are certain assumptions which may be open to question. One of these is that men will not meet responsibilities unless driven. Another is that it is dangerous to let the individual have his own way because this will harm the group. Stanton and Schwartz (481) have studied these attitudes as part of a detailed analysis of interpersonal factors in the operation of a mental hospital, and the interested reader will find much in this work of pertinence to the authoritarian military setting. Bond has commented on such viewpoints from his experience with the Eighth Air Force in World War II. Among the arguments in favor of a strict administrative policy is the contention that it is necessary to punish any failure severely if troops are to be held together under fire. Bond found no episode in which a whole group of flyers broke, and his subjects comprised the largest air force ever assembled, a force which underwent very severe stress. Panic of an entire crew was extremely rare. The case of a commanding officer is cited who had been unusually successful in combat previously. His squadron performed well in spite of the fact that he never flew a mission. Further, Bond as well as other observers, found that combat lightened morale problems, and, in fact, the serious morale problems of the war arose from keeping men idle, frustrated or useless.

Another argument for strict administrative policies is that failure to punish will create a contagious atmosphere, and the reaction will spread. Bond experimented with contagion by mixing 110 emotionally disturbed flyers with 550 healthy flyers at a rest camp over a period of 9 months. On follow-up, 6 of the 550 were removed from combat for emotional reasons. During this association, the

healthy crewmen continually upset the ill with their vivid discussions of combat. That healthy crewmen more readily understood the man who broke has already been noted. At times, crews will even protect members who are popular, although ineffective.

One important argument against strict personnel policies is on a scientific basis: If a policy serves to humiliate the individual, for example, brand him as a coward, he will exert great effort to escape such a label. He will often circumvent the policy through other avenues, and will have the assistance of those who view his problem sympathetically. These cases are, as noted before, the disguised forms of fear, masquerading under a different name, whether it be acute upper respiratory infection, or defective depth perception. From a scientific standpoint, therefore, adequate statistics are impossible and those obtained are rendered meaningless. An even greater danger is the fact that intelligent people may begin to deceive themselves.

In general, strict policies have a quality of 'negative leadership' which underestimates human grasp and understanding of the needs of their society. The successful military leader will so indoctrinate his men that the importance of what they do, and how they accomplish it, will be taken for granted. Such a leader, then, will show the way and be a living example to his men.

## CHAPTER X

### NEUROLOGICAL PROBLEMS

The principle problems of a neurologic nature which concern the flight surgeon are those pertaining to transitory loss of consciousness, epileptic phenomena, and late management of craniocerebral trauma. This section will emphasize only special areas. The reader should consult one of the standard texts in neurology for a more general and detailed discourse.

The more frequent causes of transitory loss of consciousness in aviation medicine are the various types of 'syncope,' epileptic phenomena of one kind or another, and psychogenic seizures. In the every day practice of medicine such attacks are commonplace and the busy practitioner often pays little attention to them. In the special field of aviation medicine, however, loss of consciousness under any circumstances becomes a matter of great concern, and the explanation for the episode must be established whenever possible. The flight surgeon will rarely witness such attacks personally, and must often devote time and effort to obtaining an accurate account from lay observers. Flyers themselves may be understandably vague in describing such occurrences, or may frankly attempt to rationalize or conceal an attack. Therefore, the flight surgeon should have cardinal clinical features clearly in mind to aid him in establishing the correct diagnosis.

### SYNCOPE

Vasodepressor Syncope: This is the most common type of syncope and occurs under a wide variety of circumstances. The most frequent causes are fright, overpowering anxiety, sight of blood, pain, trauma, noxious agents, and a variety of other stresses. The patient who experiences such an attack often feels himself slipping away and may report that "everything went black." There occurs a reduction in blood pressure owing to dilatation of the vessels in the periphery and the viscera with consequent pooling of blood, cerebral anemia and loss of consciousness. This type of syncope occurs mainly in the erect position and may be relieved in the recumbent position. Engel(145) has observed that, "...if the period of unconsciousness exceeds 15-20 seconds and particularly if the patient is maintained erect while unconscious, a brief, usually mild clonic convulsion often ensues."

Orthostatic Hypotension. This is a common condition in which cerebral anemia is produced by failure of vascular reflexes to maintain peripheral resistance in the upright position. Loss of consciousness results if the process is not corrected by change of posture or muscular contractions, particularly motion of the lower extremities.

Other stresses, such as fatigue, chronic debilitating conditions, unfavorable body heat balance, vasodilating drugs and psychological factors may contribute to the onset. It is differentiated from vasodepressor syncope by its occurrence only in the upright posture. There is a greater tendency for the condition to be repetitive; on the other hand, it is amenable to physical conditioning to some extent. A closely related condition is chronic orthostatic hypotension, in which there is a defect of the autonomic nervous system producing continuous hypotension and frequent syncope in the upright position. The latter condition is incompatible with military duty of any sort, while simple orthostatic hypotension, the symptom, may be correctible by a period of physical reconditioning.

Intolerance to Positive G-Forces. In this condition, cerebral anemia is produced by centrifugal force which causes reduction in circulating blood volume, presumably due to shift of blood to the splanchnic area and lower extremities. Any degree of disturbance from confusion to complete syncope may occur depending on rate of onset, intensity and duration of positive g-forces. Normal levels of tolerance have been established by repetitive centrifuge and in-flight tests on large numbers of personnel, however, these levels are variable, depending on physical condition, knowledge of methods of increasing peripheral resistance by muscular contraction, and motivation.

Hyperventilation. Engel(145) states that hyperventilation may lead to syncopal symptoms through at least four different mechanisms: decreased arterial carbon dioxide level, vasodepressor syncope, hysterical syncope and postural hypotension. The most frequent manifestations are numbness and tingling of the hands, feet and face. Disturbances of consciousness are next in frequency, e.g., dizziness, lightheadedness, giddiness or faintness. Tetany is seen in extreme cases. Emotional lability often accompanies the state of impaired consciousness.

Cough Syncope has recently been reviewed by Derbes and Kerr. (177) These investigators describe the phenomenon as a symptom-complex characterized by the occurrence of loss of consciousness preceded by coughing. In certain instances there may be accompanying convulsions. Of 290 collected cases, 97% were men and 75% were between 35 and 60 years of age. The peak of incidence was in the fifth decade. The cough is usually dry, violent and frequently paroxysmal. The cougher is usually a robust male, possessed of a gregarious personality, who overindulges in the pleasures of eating, drinking and smoking. He is usually subject to frequent upper respiratory tract infections, often has pulmonary emphysema and sometimes bronchial asthma. The syncope is usually sudden and totally unsuspected, and injury may occur.

Disturbance of Consciousness Due to the Paradoxical Effect of Oxygen. This is a condition which has recently been reviewed and evaluated by Shirley.(483) It is seen especially in young

individuals who have exercised heavily and/or been hypoxic for a period of time. When such a period is terminated by inspiration of oxygen, severe disturbances of consciousness have been known to occur. Noell(486) surveyed a group of 180 German University students and found that two subjects demonstrated this effect. The post-hypoxic paradox effect can be produced by use of the decompression chamber, by an oxygen-poor gas mixture or by re-breathing provided a carbon dioxide absorbant is used. The role of hyperventilation in this phenomenon is difficult to assess since it has been noted that the effect is more obvious if, during hypoxia, ventilation is voluntarily exaggerated. No evaluation of the incidence of the post-hypoxic paradox effect has yet been carried out among flyers. Such a disturbance could be critically important to the flyer who discovers that he has been hypoxic and abruptly switches to 100% oxygen. Grandpierre(484) has outlined the effects of hypoxia and subsequent re-breathing of oxygen as follows: (1) apnea, (2) decrease in heart rate and fall in blood pressure, and (3) incoordination, euphoria, errors in judgment, disappearance of slow EEG waves caused by oxygen deficit, and fall of cerebrospinal fluid pressure.

Disturbances of consciousness have also been observed in flyers who have performed the Valsalva maneuver too vigorously in flight with the mistaken notion that such a technique will counteract g-force. Not infrequently, syncope occurs among otherwise healthy males after voiding an excessively full bladder. This has been observed particularly when the subject has just awakened, or is in a relaxed, fatigued state. This reaction is similar to the acute collapse of the elderly prostatic whose bladder is drained too precipitously, or the patient from whom large amounts of fluid are removed by thoracentesis.

#### MANAGEMENT

Management in cases of unexplained disturbance of consciousness begins with thorough diagnostic study. Because of the highly specialized nature of many of these studies, referral to a diagnostic center will often be required. The present Air Force Medical Service policy is highly restrictive and has had a marked effect on management.

The requirements for flying fitness as outlined in Air Force Manual 160-1 are the following with respect to syncope: For Classes I and IA (paragraph 106b(17), syncope is "...disqualifying except when (a) caused by pain following a severe injury, (b) during convalescence from an acute infection or severe illness, or (c) from severe blood loss. Failure to maintain the stream of consciousness for unknown reasons or for such reasons as minor trauma or epilepsy is regarded as incompatible with qualification for flying duty." For Classes I, IA, II, and III, AFM 160-1 dictates disqualification for display of faintness or syncope of orthostatic nature.

This policy with respect to flying fitness is not without complications. Collins(482) has recently evaluated its effects and has noted that there has never been any scientific investigation of the incidence of fainting episodes in the general population or in selected groups. In a study of 300 basic airmen, Collins found a history of fainting in 22.3%. Of those giving a positive history, 42, or 63% stated that they had fainted only once, and 82% were in the "once or twice only" category. Of all the fainting episodes, 83% occurred while in the upright position, and 74% were preceded by symptoms of weakness, light headedness and sweating, suggestive of vasodepressor or orthostatic syncope. A thorough review of American and British literature does not confirm the generalization that a history of a single episode of fainting is an indication of a tendency to faint.

Collins' data suggest that fluctuations in the thoroughness of processing of men entering flying training may permit entry of more 'fainters' than is realized. In an evaluation of medical disqualifications at a trainee physical processing unit during a 1-year period, the percentage of the total disqualifications that were due to fainting varied from month to month, ranging from 0 to 20.

Although Central Aeromedical Evaluating Centers follow the suspension policy strictly, Collins found that this is not adhered to at Base level: of a total of 15,269 suspension actions taken throughout the Air Force during the 4-month period August through November 1955, there were 29 diagnosed as syncope of various types or of 'undetermined cause.' Nineteen of these were cleared for flying at Base or numbered Air Force level, often without evidence of adequacy of causation presented with the diagnosis. A total of ten cases, including three of the syncope cases and a variety of other conditions such as 'epilepsy,' 'convulsions,' 'amnesia' were either eliminated from flying training or referred for further evaluation and disposition. In addition to these cases where the episode was made a matter of record one might correctly assume that other cases were not reported.

Collins' study, therefore, provides evidence that the criteria for flying fitness in cases of syncope have had a suppressing effect upon the primary principle of management: thorough diagnostic study. It should be noted that this policy is somewhat unique. Commercial airlines in the United States(23) and the Air Forces of other countries(488) handle such cases on an individual basis, following thorough study.

Other aspects of management of syncope are determined by the underlying causative factors. The flight surgeon can assist himself and his flyers materially by instructing them in preventive measures, many of which are in the area of good personal hygiene. Romano, et al(161) provide a useful illustration of the learning process in reducing the occurrence of vasodepressor syncope: 78 subjects were exposed to decompression sickness in the altitude chamber at altitudes of 35,000 to 38,000 feet. On the first flight

18% developed vasodpressor syncope; by the seventh flight the incidence had fallen to 2% in spite of the fact that the incidence and severity of the decompression sickness remained essentially the same. In addition to instructing his flyers in recognizing and forestalling faints, the flight surgeon should indoctrinate them in the manifestations of such attacks so that they can be adequately described to medical authorities.

### EPILEPTIC DISORDERS

When a pilot suffers an attack of syncope with associated convulsions, there is an almost universal attempt to rationalize it as a benign occurrence unrelated to epilepsy. The hazards involved in permitting seizure-prone individuals to fly are self-evident. Although clinical epilepsy affects only about one-half of one percent of the population, approximately one-third of all clinical epileptics experience their first attack after reaching the age of 21. On the basis of these figures, we must expect to see develop within our flying personnel population a number of clinical epileptics. The flight surgeon must, therefore, develop a high index of suspicion regarding seemingly innocuous faints.

The epileptic disorders which present the greatest difficulty to the flight surgeon are the minor seizures. For the sake of completeness, however, a description of major seizures is presented as well as some consideration of differential points in diagnosis of the various minor seizures.

Major Epileptic Seizures: The majority of cases seen in the military setting are of this type. About two-thirds are preceded by some type of aura, frequently referred to the epigastrium. The aura may also be noted as a twitching or tingling in the periphery of one extremity. There are occasionally seen psychic auras of horror or fright, or auditory or visual auras. An epileptic cry often precedes a major attack and is caused by spastic thoracic and abdominal muscles expelling air through the glottis. The seizure itself is usually a tonic-clonic convulsion, although occasionally there may be simply a tonic seizure with few or no movements. In the usual case the subject foams at the mouth, may become deeply cyanotic, may bite his tongue or cheek or otherwise injure himself. The pupils are usually dilated and rarely react to light. The corneal reflex is abolished and the sphincters are relaxed. Following the seizure the patient passes into a deep sleep and during this period shows signs of nervous exhaustion; the deep reflexes may be absent, a positive Babinski sign may persist for hours, the patient may be unable to understand spoken words and may show facial weakness or nystagmus. At times his behavior may resemble a phenomenon known as 'post-epileptic automatism.'

Minor Epileptic Seizures: These include psychomotor and petit mal attacks. It is this group which requires the flight surgeon to be especially alert, since it comprises one-third of the epileptic disorders he will encounter. He should be suspicious of any complaint of faints, odd sensations, spells, or unusual behavior. Such attacks may exist for several years before becoming clinically recognized major epilepsy. Whatever the ultimate course and prognosis, the effect of such attacks upon ability to function safely and efficiently as an aircrew member is of primary concern.

Psychomotor Epilepsy: Gregg and Rose(179) note that these attacks may begin at any age, but are primarily a disease of adults. If the seizure has begun after the second decade, the possibility of petit mal epilepsy is essentially ruled out. The diagnosis is usually made by taking a careful history. Patients, and certainly flyers, are reluctant to discuss such bizarre episodes because it is feared that the story will be misinterpreted as evidence of insanity. Frequently the minor seizure can be detected only by direct questioning. Psychiatric symptomatology is quite common in established cases. The psychomotor epileptic frequently presents a management problem, therapeutically, economically and socially. He is generally hostile, quick to project and then seek revenge against authority. Rarely does he have a good work record, losing positions as much through emotional instability as seizures. He is eager to gain attention, often gets into trouble and is generally a poor marital partner.

An aura is frequently present in psychomotor seizures, and movements are usually semipurposeful, involving the limbs individually. Wandering about and gustatory movements are common. Jargon or grunting sounds are common and incontinence of bladder and bowels is not infrequent. If one questions the patient carefully after an attack, he is invariably found to be confused.

Petit Mal Epilepsies: According to Lennox(187) this is primarily a disorder of children. It consists of brief (5-30 seconds), frequent lapses of consciousness. There is almost never an aura, the patient is usually immobile and muscular movements, if any, are restricted to regular, rhythmical, clonic jerking, usually at the rate of 3 per second involving the eyelids or brows, rarely the head and arms. They begin and end suddenly without aura or postictal confusion, and do not last as long as psychomotor attacks. Jargon, grunting sounds and incontinence are rare. Psychiatric symptomatology is uncommon, the mentality and personality remaining intact despite thousands of attacks.

Lennox also includes in the group of petit mal epilepsies two other kinds of seizures known as myoclonic epilepsy and akinetic epilepsy. Myoclonic epilepsy is characterized by single contractions of the flexor muscles of one or both limbs, occasionally of the trunk musculature. There is no loss of consciousness. Akinetic epilepsy, rarely occurring in adults, consists of a sudden

loss of postural tone. Without warning or muscular movement the child collapses. Usually the patient rises immediately, but may lie for several minutes. Almost never is there alteration of consciousness. Except for the lack of an emotional excitant, the episodes may well resemble cataleptic attacks.

Penfield and Jasper(190) have added a fourth type, petit mal automatism, to the group. It occurs only rarely, and may be indistinguishable from the psychomotor seizure in that there may be lip-smacking, fumbling movements of the hands, and wandering about in a confused manner.

Photically-activated seizures are an unusual occurrence among aircrew, but may be produced in rare, predisposed individuals. Most commonly, it results from the rays of the sun flickering through the rotating blades of a propeller. Photic epilepsy is a possibility to consider in unexplained helicopter accidents. Continuous flicker is, in addition, a very unpleasant experience, and in helicopters it is important to provide some form of overhead shielding for the crew during cross-country flights.

#### PSYCHOGENIC SEIZURES

In a sense, many attacks of vasodepressor syncope will be found to be initiated by psychic mechanisms, e.g., fainting at the sight of blood. Other seizures, relatively uncommon in flyers, have different characteristics and have been referred to in the past as 'hysterical' in nature. When first seen, such attacks may resemble epileptic phenomena, particularly grand mal epilepsy. Grinker(180) has observed that "...such attacks do not show the progression of tonicity, there is not the deep unconsciousness, and the convulsions are not orderly. There is a peculiar, grotesque excitability during which the patient is never completely unconscious. The convulsions usually occur after some emotional disturbance, and lack the periodicity of the epileptic; and finally, the hysterical personality is present. The spells usually occur in the presence of others and the patient rarely is injured." This reference to the 'hysterical personality' indicates that in such cases it is usually possible to establish a diagnosis of a character and behavior disorder from the life history and present personality of the subject. Frequently the pattern is one of immaturity and collapse under minor pressures. At times, the lapse of consciousness may be of longer duration, for example, a fugue or amnesia. Such cases are also understood in terms of lifelong character and behavior patterns.

#### CRANIOCEREBRAL TRAUMA

In this age of rapidly moving automobiles and high performance aircraft, accidents and complicating head injuries have become

commonplace. It is not within the scope of this Department to enter into the management of the acute problems of craniocerebral trauma, but the delayed effects and their proper management are a portion of the flight surgeon's duties with which he must have some familiarity.

The flyer who has been grounded for a head injury frequently puts great pressure upon his flight surgeon to restore him to flying status or to reevaluate him at intervals of time too brief or frequent to alter his status. The requirements set forth regarding suspension of flying personnel in AFM 160-1 are rigid, but nevertheless well founded. In cases where regulations prescribe grounding for definite periods of time, it does not solve the flight surgeon's difficult patient-physician relationship to refer his problem back and forth to the neurological consultant unless it is for follow-up care over and above the question of flying fitness. The flight surgeon should brief his patient fully on the precautions which must be followed after head injury and be prepared to outline the possible complications.

Walker has prepared an excellent monograph on the subject of post-traumatic epilepsy(195) from which matters pertinent to the flight surgeon have been abstracted. What is the likelihood of development of seizures following head injury? Obviously, the greater the degree of evident damage to the central nervous system, then the more the likelihood. The frequency of post-traumatic epilepsy is directly related to the severity of the injury, i.e., the extent of cortical involvement. Injury is recognized by loss of consciousness, hemiparesis, aphasia or excitatory focal manifestations of cerebral damage at the point of the blow, such as Jacksonian seizures or localized EEG abnormalities. At a later date, despite the absence of these signs at the time of injury, brain damage may be detected in the form of brain atrophy on pneumoencephalographic examination. It is important to understand that post-traumatic epilepsy can develop without these evidences, although their complete absence makes the diagnosis of post-traumatic epilepsy difficult to substantiate.

Post-traumatic convulsions usually begin within 2 years of the cerebral injury. If the interval is longer than this, other causes should be considered. The incidence of epilepsy following closed head injury averages 2.5 to 3.5%. An analysis of several series of cases of open wounds of the head indicates that approximately 30% are followed by seizures. The variation from one series of cases to another ranges from 4.5 to 49%. The presence of infection following injury increases the likelihood of seizures. Lesions located in or near the central sulcus also increase the chance of seizures. Thus, parietal wounds are much more prone to have a complicating epilepsy than frontal, temporal or occipital wounds.

Pneumoencephalography and electroencephalography are two useful clinical devices with which to evaluate the extent of craniocerebral trauma. In closed head injuries the pneumoencephalogram usually is

normal or shows a symmetrical dilatation of the ventricles. According to Walker, 87% of post-traumatic epileptics show an abnormal pneumoencephalogram. In cases of penetrating head injury, the findings may be bilateral ventricular enlargement with an outpouching at the site of the skull defect, unilateral ventricular enlargement with outpouching, or simple unilateral ventricular dilatation on the side of the lesion. These ventricular changes are not peculiar to post-traumatic epilepsy. They can be found in a non-selected group of head injuries, but the incidence of severe ventricular distortion is higher among epileptics.

Electroencephalography at rest occasionally shows in acute head injury abnormal wave bursts such as occur in idiopathic epilepsy. These may be associated with convulsive attacks. When epilepsy has developed as the result of a brain injury, the EEG is almost always abnormal. The changes are usually localized, but occasionally generalized disturbances are present. Focal delta (1.0-3.5 per second) activity, spikes or sharp waves suggest brain damage. These are usually constant in location. A normal EEG does not rule out post-traumatic epilepsy. Walker reports 8% normal tracings among known seizure cases. When activating techniques are employed with electroencephalography (e.g., hyperventilation, photic stimulation, intravenous medications) existing patterns may be exaggerated. Metrazol tends to aggravate abnormalities present before activation, and may induce auras and seizures. However, there is no relationship between the frequency and number of attacks which the patient has had and their occurrence with metrazol activation.

The seizure in post-traumatic epilepsy is focal in 80% of cases. There may or may not be a spread resulting in a generalized convulsion. It is not uncommon to see these attacks in the form of petit mal or grand mal seizures without a localized aura. True Jacksonian seizures are rare. Those patients having no aura have a high incidence of frontal wounds; those with a motor aura, frontal and parietal injuries; in the group with sensory aura, wounds predominate in the parietal region. The aura itself may be motor, somatosensory, visual, vertiginous, auditory or epigastric. Some auras are highly complex and bizarre.

The Department of Neuropsychiatry of the School of Aviation Medicine, USAF recommends management of cases of craniocerebral trauma according to a strict interpretation of the requirements for flying fitness as outlined in AFM 150-1. Chart I sets forth these criteria.

CHART I

DISPOSITION IN CHANIO--CEREBRAL TRAUMA - AIR FORCE MANUAL 160-1

COMPLICATION

CLASSES I & IA

CLASS II

<u>COMPLICATION</u>	<u>CLASSES I &amp; IA</u>	<u>CLASS II</u>
Unconsciousness	Less than 15 mins., acceptable; 15 mins. to 2 hrs., observe for one year. Over 2 hrs. unacceptable.	15 mins. or more, observe one year and reevaluate at that time.
Amnesia	Less than 15 mins., acceptable; 15 mins. to 4 hrs., observe for one year. Over 4 hrs. unacceptable.	15 mins. or more, observe one year and reevaluate at that time.
Focal neurologic signs (paralysis), weakness, sensory disturbance convulsions)	Not acceptable	Indefinite suspension
Post-traumatic headache	Reject if over 3 months in duration.	Suspend indefinitely if over 3 months duration.
Personality change or intellectual deterioration	Unacceptable	Indefinite suspension
Depressed fracture or bony defect	Unacceptable	Indefinite suspension
Craniotomy	Unacceptable	Suspend for one year, regardless of cause.
Fractured skull	Acceptable if unaccompanied by above complications, no sequelae for one year, present examination negative.	Suspend for one year, then reevaluate.
Focal brain injury or dural damage	Unacceptable	Suspend for at least one year.
Convulsions	Unacceptable	Indefinite suspension

## DIAGNOSTIC PROCEDURES IN LOSS OF CONSCIOUSNESS

The flight surgeon confronted with a flyer who has suffered a transient loss of consciousness has a wide range of clinical conditions which might offer an explanation. The following detailed list includes most of the known causes for episodes of this sort:

Epilepsy	Diabetic coma or hyperinsulinism
Vasodepressor syncope	Carotid sinus hypersensitivity
Hysterical syncope	Cardiac disease
Hyperventilation	Hypertensive cardiovascular disease
Hypoglycemia	Brain tumor
Physical exhaustion	Head injury
Dehydration	Cataplexy
Sudden increase in intrathoracic pressure	Migraine
Blood loss	Familial periodic paralysis
Drug sensitivity	Uremia
Chronic infection or toxic disease	Myasthenia gravis

An adequate, searching history of the episode of unconsciousness, and of the background data are vital to the diagnosis. This data must be compiled from others as well as the patient. This is especially important if referral is contemplated to a consultant, in which case the data should be organized and sent with the patient. Attention should be directed to the family history of like attacks, birth history and the occurrence of severe infections in childhood.

Other clinical studies may include those indicated from the following list:

### Laboratory

Urinalysis	Spinal fluid study
Complete blood count	Skull and chest x-rays
Serologic tests	
Blood chemistries: Glucose tolerance, calcium, potassium, etc.	

### Other Studies

Exercise test	Electrocardiograph
Carotid sinus sensitivity	Electroencephalograph
Hyperventilation	Pneumoencephalograph
Posture changes	Psychiatric evaluation

Treatment of Convulsive Disorders: Although the flyer who develops seizures is no longer permitted to fly, the flight surgeon may continue to follow and treat such patients with one or another of the anticonvulsant medications. Attached is Chart II pertaining to antiepileptic drugs from Kaufman and Isenberg.(185)

CHART II

DISTINGUISHING FEATURES OF CLINICALLY USEFUL ANTI-EPILEPTIC DRUGS

DRUG	CLINICAL USEFULNESS	AVAILABLE PREPARATIONS	THERAPEUTIC RANGE	ACTION	TOXIC REACTIONS		PRECAUTIONS
					MILD	SEVERE	
Oxazolidine 2,4-diones							
Tridione (Abbott)	Idiopathic epilepsy especially minor seizures (may increase frequency of seizures when first administered).	0.3 gm capsule 0.15 gm tablet with 80 mg magnesium trisilicate	0.3-2.1 gm/day	Elevates seizure threshold	Photophobia Nausea Rash Drowsiness	Agranulocytosis Hepatitis Nephrosis	Monthly blood counts Monthly urinalysis including bile test Dark glasses for photophobia
Hydantoin							
Dilantin (Parke, Davis)	Major seizures of acquired or idiopathic epilepsy Intermediate seizures Minor seizures of acquired epilepsy (?)	0.03 gm capsule 0.1 gm capsule with 0.032 gm phenobarbital 0.1 gm capsule containing vegetable oil	0.2-0.6 gm/day	Limits the spread of seizure discharge	Gum hyperplasia Drowsiness Rash Irritability Ataxia Vertigo	Agranulocytosis (rare)	Dental supervision Semi-annual blood count
Barbiturates							
Phenobarbital	Major seizures of infrequent occurrence	Tablets in 5 sizes: 8, 15, 30, 65, 100 mg Elixir 15 mgm/4cc	0.1-0.6 gm/day	Limits the spread of seizure discharge	Rash Drowsiness Ataxia Tremors of extremities dizziness Elevates seizure threshold	Rare	General care

## CHAPTER XI

### PREVENTIVE PSYCHIATRY IN THE AIR FORCE

Air power means a strong retaliatory force in-being. This implies that all components of an Air Force are in a state of constant readiness and mobility. The medical service reflects this in its policies, activities and staffing. Every airman is viewed in the light of his ability to function with maximum efficiency, and the medical service constantly must reevaluate its methods of insuring continuing efficiency of the airman throughout his period of service. It has been found in the course of such evaluations that prevention of disease is possible, and that prevention is economical in money, man-hours, and in getting the job done.

The military services have been outstanding in the development of preventive aspects of medicine. Hygiene and sanitation, the conquest of malaria, the development of protective equipment, and the history of aviation medicine itself are bright pages in the annals of medical history. Psychiatry has also felt the impact of this emphasis on prevention. The Civil War and World War I witnessed some of the early efforts in this special field. It was not until the latter part of the Second World War, however, that ideas began to crystallize into what is now recognized as a preventive psychiatric program.

It has been customary in the past, when discussing preventive psychiatry, to become involved in rather esoteric discussions of morale, leadership, and the like. As our experience has grown, we have come to realize that it is not necessary to be vague and philosophic, but that certain practices of management can provide a reasonable assurance of good morale, and can serve as a guide to the Commander.

The basic precept of all preventive psychiatry is this: Effective job performance requires good motivation; good motivation, in turn, requires attention to the welfare and the orientation of the individual. Morale is a highly dynamic phenomenon with many apparent contradictions. For example, although morale and motivation go hand-in-hand, they may be independent of material support and welfare, e.g., an attack or disaster in the homeland may witness surprising morale in the face of great deprivation. Conversely, morale and motivation may be dismally low despite material comfort and security if the individual considers his efforts futile. Morale is a group phenomenon: The members must see the obstacles before them, know why they are there, and know that all members are shouldering the load equally.

The flight surgeon is an active participant in preventive psychiatry at all times, simply because low morale means some airmen

will get sick and won't care whether they get well or not. The flight surgeon must, as a preventive psychiatrist, go to meet the problems at their source and not wait to find them in his dispensary. He must have a keen nose for failing leadership and personnel policies. He must anticipate them, and even more, he must have a ready fund of knowledge of what happens when principles of preventive psychiatry are violated. He will not be alone in this field, but will work with a varied group of similarly dedicated people: The Squadron Commander, the Personnel Officer, the Chaplain, the Provost Marshal and the Judge Advocate. All of these, under the Commander, are vitally concerned with the welfare and orientation of their men. Because the field may seem crowded, the flight surgeon may not appreciate the particular contributions he can make by virtue of his training and position. It is the purpose of this discussion to highlight this contribution and to indicate his interaction with the Commander.

#### THE COMMANDER IN PREVENTIVE PSYCHIATRY: COMBAT

Although the flight surgeon is intimately concerned with all of the measures employed here, nevertheless, they are not a primary medical responsibility. It is quite apparent, however, that these measures effect morale tremendously.

Training. Good training means emotional preparedness. The ability to behave automatically in a time of danger may well be lifesaving. One of the most threatening aspects of combat to the flyer is his passivity. The ability to do something purposeful has tremendous value. To anticipate danger with purposeful familiarity is a result of good preparation. Training, not just in operating the aircraft, but in escape, evasion, and techniques of survival provide inestimable emotional support. Most fear is fear of the unknown. Good training can identify and dispel many needless fears.

Rest and Rehabilitation. The importance of 'R&R' was rediscovered by our forces in World War II after neuropsychiatric losses among combat flyers and troops became dangerously high. For example, in the Italian campaign in 1944 it was noted that 15-20% of the total non-fatal combat casualties were psychiatric. Our combat infantrymen were found to reach their peak of effectiveness in the first 90 days, following which their efficiency fell off. The so-called breaking point was reached in 200-240 combat days. In marked contrast to this was the British estimate that their infantrymen would last about 400 days due to their policy of pulling men out of the line at the end of 12 days or less for a 4-day rest period. The Americans at this time were staying in the front lines 20, 40, occasionally 80 days. The 'R&R' has now become a well-established policy for combat personnel. Where feasible, rest camps and centers can be established away from the combat area. This practise was

followed in Europe in World War II. During the Korean campaign it was possible to give airmen 5-day 'R&R' leaves in Japan, and this measure contributed greatly to the morale of the men. Other areas of the world, such as Arctic stations provide similar opportunities during peacetime. The important feature in the 'R&R' leave is that it gives the fighting man a regular 'breather' before the combat load becomes so heavy that he begins to break under it.

Rotation. The fighting man needs a rest. He also needs a goal. When losses are heavy, he maintains hope by knowing that he has a chance of coming through the experience alive. There were times when the Eighth Air Force in England in World War II suffered such severe losses that an airman seemed not to have a mathematical chance of surviving more than a certain number of missions. Mission tours were thus established to give each man more than a fighting chance. The importance of rotation policies for morale was clearly in evidence in the dark early days in the Korean campaign when the manpower situation did not yet permit placing a policy in effect. Observers have noted one negative effect of rotation policies, however, in that personnel are constantly arriving and leaving except in those cases where an entire unit rotates. Under these circumstances group identification is more difficult to achieve and there may not be the performance one finds in a tightly-knit fighting unit.

Replacements. As personnel leave the combat theater, they must be replaced by well trained men who can step into their duties. The new replacement has special problems when he arrives in a new outfit, a stranger to the men and to the land where he must risk his life. The early adjustment period for him is often acute and difficult. This can be overcome to a considerable degree by a realistic training and orientation program to fit him into his work.

Limited Duty. It is important that each man be used to the fullest extent possible. If a man is a psychiatric casualty as a result of his combat experience, it is frequently possible to employ him in non-combat duties. This goes a long way in preserving his pride and self-respect. He does not, then, have to retain neurotic symptoms as evidence that he was sick and unable to go on. During the Korean campaign many psychiatric casualties were rehabilitated for continued duty in Korea and Japan, and these men rendered excellent service. They were not evacuated back to the States to become chronic psychiatric cripples.

#### THE COMMANDER IN PREVENTIVE PSYCHIATRY: SPECIAL MANAGEMENT

There are many measures in war and in peace which can give the individual a feeling of self-respect and importance. These have to do with location of duties, the capacity in which he serves, the extent to which he is used sensibly in getting the job done, and the

recognition he receives for doing his job well. Implicit in this is the thought that the individual airman can, at times, be singled out for special handling, if the situation and the person warrant it. Beyond the job itself are such matters as the way the airman spends his leisure time, the facilities which are provided for his use, and the opportunities for self-advancement.

All of these matters are the responsibility of the Commander. To assist him he has a Character Guidance Council set up by Air Force Regulation to evaluate morale and recommend programs to strengthen it. The Council includes the Surgeon, the Chaplain, the Personnel Officer, the Judge Advocate, the Provost Marshal and the Squadron Commanders. The Surgeon has a special role in this work and it is of great importance that he appreciate this.

#### THE FLIGHT SURGEON IN PREVENTIVE PSYCHIATRY: GENERAL DUTIES

As noted previously, everything the flight surgeon does feeds directly into morale. He need not practice psychiatry, and certainly does not have to be a psychiatrist to render support to a preventive psychiatric program. Whether he is inspecting mess halls, attending a briefing, or examining ears on the flight line, he is boosting the emotional strength of his men.

Certain duties have a more direct psychiatric implication. Among these is the proper administration of the AFMA. Any comprehensive program in preventive psychiatry logically begins with selection of the right man for the right job. It is important, therefore, that the flight surgeon learn what makes a good flyer, and learn to recognize this among Cadet applicants whom he examines. Combined with this empathic knowledge must be a reasonably standardized approach to the AFMA interview which insures an adequate evaluation.

Sick Call is an activity of the flight surgeon which requires much clinical acumen. Many sick call problems are emotional in origin. A flyer or airman comes to see the flight surgeon because something about him hurts and he is uncomfortable. The skillful physician will recognize that the cause of the hurt may lie in any of several areas beyond the anatomical. Nevertheless, the patient requires time, attention and skillful examination as indicated. Much work in the dispensary succeeds by virtue of its awareness of the emotional aspects of illness, but the flight surgeon engages in psychiatric techniques such as direct interview therapy with relatively few of his patients. It is his inner awareness of the psychiatric aspect of his work which is important.

A third area where the flight surgeon's work has many direct and indirect implications for the emotional welfare of the group

is in his handling of diagnosis and of grounding. Grounding the flyer is a function of the flight surgeon which may make the latter feel as though he is "damned if he does, and damned if he doesn't." Because it is an emotionally charged situation, certainly where the presenting problem is a psychiatric one, the action which the flight surgeon takes has many implications for the Group. In a combat theater, he cannot ground flyers too readily. When he does, he must have sound medical reasons for doing so. He is in the difficult position of having to differentiate between the man who won't serve and the man who can't serve. The latter is his clear-cut medical responsibility, and he must be alert to recognize him and diagnose his condition accurately. The flight surgeon must be cautious lest his own punitive feelings creep into the picture. For example, he may disapprove of the flyer with VB, but he need not ground all flyers with a venereal infection. The flight surgeon will be hurt, and his men will also suffer, by a reputation for grounding too strictly or too leniently. If the flyers know he wants to keep them flying, and to clear up their problems before grounding is necessary, they are not likely to avoid him or go elsewhere for treatment.

#### TEACHING ASPECTS OF THE FLIGHT SURGEON'S WORK

The flight surgeon has many occasions on which he addresses large or small groups of flying personnel. The occasions may range from the monthly flying safety meeting to a session on first aid techniques. He quickly comes to realize that his role as a teacher ranks at least as high as his clinical duties. As a teacher he will find his flyers to be inordinately interested in the psychology of man and of themselves. In the more informal sessions, this will show itself in numerous questions centering on psychological problems. Spontaneous, informal discussions of this kind can be meaningful and corrective to the participants, and can be utilized and indeed exploited by the discerning flight surgeon. Logical clear explanations of anxiety, its purpose and its manifestations can be made; delineation of present environmental stresses can also be pointed out, and their impact on the individual with the formation of varicous symptoms. Flyers as a group are keenly intelligent and can utilize a sensible presentation of psychiatric problems.

A special aspect of the flight surgeon's work is his contribution to the Character Guidance Council. The Base Surgeon is an appointed member of this council, however, every member of his staff has a responsibility to keep him informed of matters affecting morale. The dispensary is a listening post for morale problems. He should condition himself to pick up incipient morale problems, and to look for effective ways of dealing with them, not just to straighten out the individual, but to better the lot of the group as a whole.

A particular area of difficulty for the flight surgeon is in the management of the patient--more frequently the airman--who hurts physically, but whose problem begins with an inability to adjust his personality to the demands of his environment. The flight surgeon can render much support to this individual, but 'definitive treatment' must usually come from the squadron. There must be close liaison, therefore, between the flight surgeon and the squadron. The squadron environment must be appreciated by the flight surgeon, and he, in turn, must keep the squadron informed regarding cases of maladjustment who come to see him. The responsibility for these cases rests with the squadron but the flight surgeon can render expert advice, and can also help to identify the airman whose personality difficulties are so extensive that rehabilitation is not likely. By keeping his own Medical Commander informed, the flight surgeon can see that this problem area receives its deserved attention. Essentially, he can help to identify airman failure as a result of squadron failure, and to differentiate this from airman failure as a result of personality problems. There are various terms currently in vogue to label this type of activity in which the flight surgeon participates, e.g., management, and selection-in-depth. Neither term carries any particular medical stamp, but the medical implications are staggering. It is the job of the flight surgeon to recognize this, and support it as part of the overall program in preventive psychiatry.

## CHAPTER XII

### PSYCHIATRIC SELECTION

If prevention is the cornerstone of military psychiatry, then any program in preventive psychiatry must have as its nucleus a sound system of selecting personnel from a personality standpoint. Much of the lustre of the term 'prevention' is shared by the concept of 'selection' since this seems to offer not only the possibility of thwarting outbreaks of mental disturbance, but goes beyond this to detect susceptibility to breakdown, to anticipate it and to avoid the predisposed individual. For the flight surgeon psychiatric selection involves understanding and proper administration of the Adaptability Rating for Military Aeronautics. However, so that the 'ARMA' may be viewed in its proper perspective, it is important to consider present day research efforts and the effects these have had on the status of assessment through a personal interview such as the 'ARMA.'

Psychiatric selection has been an integral part of the medical appraisal of potential flyers for many years. The consequences of failure to select flyers created grave problems in the early days of military aviation which thrust selection into prominence as a special field. For example, in 1916 the Air Corps was developed largely from unscreened personnel of other branches of the US Army. The incidence of neurosis in trainees was about 50%, and 90% of accidents were due to pilot error. At the close of the first year of World War I, Great Britain's casualty figures revealed that for every 100 flyers killed, 2 of these were lost in enemy action, 8 through defects in the aircraft, and 90 because of deficiencies in the individual such as physical unfitness, recklessness and carelessness. With the accelerated development of aviation as an industry and major military arm in recent years there has been a growing concern for the high cost of training flyers, and for the high turnover rate among trained personnel among commercial airline companies, as well as in the US Air Force.

### HISTORY OF SELECTION

Modern developments in psychology, statistics and experimental technique, have elevated selection to the status of a science. In operation, selection methods are directed toward those attributes which contribute to successful aircrew performance. This implies a thorough analysis of the duties of an aircrew member, and an understanding of the basic skills and subskills which are integrals of successful performance. The emphasis then shifts to the development of tools to identify potentialities in untrained individuals which will distinguish them as likely candidates. This presupposes that an aircrew selection system will interest itself in such broad areas

as intelligence, coordination, aptitude, motivation, personality, emotional stability, general aspects of physical and mental health, and predisposition to psychological maladjustment. The selection method, then, is a stepwise process, first, of assessing the requirements of a particular task, then developing tests to identify individuals who possess these requirements, and finally, conducting a field study to demonstrate a significant difference in the quality of performance of those who fail the tests as compared with those who pass them.

McFarland has provided a comprehensive review of the development of such tests in aviation.(23) During and after World War I, the first objects of study were reaction time, attention and perception, muscular tension, equilibrium and emotional stability. Toward the end of World War I psychologists at Kelly Field devised tests for emotional stability and mental alertness which correlated well with aptitudes for flying as measured by instructors' ratings, e.g., measurements of hand tremor had a correlation ( $r$ ) of 0.35 with flying ability, and changes in the frequency of respiration following the unexpected discharge of a pistol had a correlation of 0.25. Mental alertness was judged by the Thorndike Intelligence Test which had a correlation of 0.35 with flying aptitude. A composite score based on several tests was found to be sufficiently related to Flight Instructors' ratings to permit its use for prognosis with some degree of confidence.

Following these developments, there were few studies until World War II. The value of early work was limited because of failure to make job analyses of the requirements for satisfactory performance. In addition, workers failed to develop methods of rating or measuring flight performance in the air for correlation with tests of selection. Finally, there were no follow-up studies to determine how well the tests actually differentiated good and poor prospects in later stages of their flying careers. In 1939 the Civilian Pilot Training Program afforded an opportunity for renewed study of selection tests, and of the many which were used, a few proved of some value. Psychomotor performance as measured by complex reaction time and coordination tests was found to be related to success. The program, however, did not permit good evaluation because less than 0.5% failed to qualify, different raters failed to agree, and the great majority of students received average grades.

The US Navy Bureau of Aeronautics(23) developed a test battery based on work done in the Civilian Pilot Training Program, and on the expert judgment of psychologists and aviation specialists. An original battery of 40 psychological and physiological tests was administered to each of 919 incoming cadets. Using pass-fail criteria, it was found that scores on the intelligence and psychomotor tests differentiated reliably. 44% of those who eventually failed could have been eliminated before training, with a loss of only 14% of those who passed.

During the 5-year period 1941-1946 the US Army Air Force conducted intensive research on selection techniques under the direction of Flanagan.(274) The initial screening device was the AAF Qualifying Examination, AAFQE. This test was modified frequently and scoring was flexible. As the war progressed, emphasis shifted from selection of pilots to classification for specific aircrew duties. A test battery known as the Aircrew Classification Battery was developed comprised of six apparatus tests of coordination and speed of reaction, and fourteen printed tests including mechanical comprehension, perception, and visualization. Weighted aptitude scores were then derived from these tests and ranged from one to nine. The term 'Stanine' for 'Standard Nine' was coined and each candidate received a Stanine rating. The type of training to which a man was then assigned was determined by his aptitude rating for the job, his expressed job preference and the prevailing needs of the Air Force. Thus, a candidate with a Pilot Stanine of 9, a Navigator Stanine of 6 and a Bombardier Stanine of 7 would be assigned to pilot training.

In order to study the effect of various standards of selection on elimination rates, an experimental group of 1000 unselected men (273) was allowed to enter pilot training in 1943 regardless of test score. In this group the elimination rates would have been 75% if there had been no selection for aptitude; 61% if the pre-war criteria of two or more years of college and passing the AFMA had been used; 51% if the aptitude standards of November 1943, requiring an AAFQE score of 180 or more and a Pilot Stanine of 5 or over had been used; and only 36% if the aptitude standards of November 1944, requiring an AAFQE score of 180 or more, and a Pilot Stanine of 7 or over had been used. Without psychological testing it was necessary that 397 applicants be admitted to the training course in order to assure the graduation of 100 trained pilots. With psychological tests it was only necessary to admit 156.

To demonstrate the effectiveness of the Air Crew Classification Battery for predicting primary flight training success in a highly selected group, an experimental study was made of West Point cadets. That the Pilot Stanine in this group had a predictive efficiency was evidenced by the fact that only 10% of the men with Pilot Stanines of 8 and 9, and 30% of those with 5 and 7 were eliminated, whereas, 47% of those with Stanines of 4 or 5 and 76% of those with Stanines of 2 or 3 failed to complete primary training.

Another study of 1218 B-24 aircraft commanders and 1232 co-pilots was made in the Fourth Air Force.(294) A marked and consistent relationship between pilot aptitude scores and the eventual assessment by training personnel of proficiency and ability in the assignment of duties was found. The percentages of bomber pilots becoming commanders and co-pilots, respectively, in the Pilot Stanine 9 group almost reciprocated those in the combined three lowest Stanine groups.

The importance of the Aircrew Classification Battery is such that it is a well established component of the initial screening of Aviation Cadet applicants at the present time. Air Force Manual 160-1 outlines the procedure:

"Aptitude Testing.

"1. In order to insure that training is given only to those who are best fitted by aptitude for such training, the Chief of Staff, USAF, may require that applicants for flying training be examined with a battery of classification tests. The tests to be included in this battery and the procedures for administering and scoring tests will be determined by the Chief of Staff, USAF. Tests of sensorimotor coordination, perceptual alertness, information, intelligence and judgment, and proficiency in fields such as mathematics usually will be included. Final ratings will be given in terms of a standard 9-point (Stanine) scale ranging from 9 (highest) to 1 (lowest) for each specialty.

"2. Minimum qualifying standards for training in each specialty will be determined by the Chief of Staff, USAF. Stanine scores, when available, will be recorded on the Standard Form 88 under the same item as the ARMA."

THE DEVELOPMENT OF PSYCHIATRIC SELECTION

It is a matter of historical fact that certain components of successful flying performance have been identified, tests have been developed, and an impressive validation of these tests has been carried out. The Aircrew Classification Battery, however, concerns itself primarily with intelligence, psychomotor performance and job aptitude. Areas which are not directly touched upon are those involving personality, emotional stability and predisposition to psychological malfunction. Sells(292) defines this area as follows: "Psychiatric selection of flying personnel is concerned with the measurement of predisposition to neurotic or maladaptive reactions to the stresses of the military flying situation. Psychiatric selection is conceived as separate and distinct from the present aptitude selection procedures which measure chiefly abilities and skills related to potential performance proficiency. Although psychiatric and aptitude selection may overlap to the extent that patent disqualification in either may cause disqualifying total performance, the distinction lies in the unique aspects of behavior they are called upon to predict, and the distinct criteria required in their development. Aptitude selection refers to the probability that an individual will develop special skills and procedures necessary for proficiency in military aircrew duties. Psychiatric selection refers to the probability that an individual will be able to maintain such proficiency while enduring threatening emotional stress such as he might experience in combat."

When one leaves the more objective areas of performance, psychomotor reaction and intelligence, to enter into considerations of personality, one applies selection techniques to an extremely difficult and complex sphere. On the one hand there is encouragement from such accomplishments as the Aircrew Classification Battery. Military leaders and professional observers are well aware that certain personality types are useful in combat, whereas others are not, irrespective of those aptitudes identified by such measures as the Aircrew Classification Battery. Rohrer, Bagby and Wilkins(291), studying US Marine Corps officer candidates, concluded that the obsessive, cyclothymic and hysteria types might show acceptable performance whereas the psychopathic personality, the paranoid and the schizoid were usually unsuccessful. These observations have been repeated so frequently since World War II that they are virtually accepted as fact. Sells' work at the USAF School of Aviation Medicine is directed toward identifying these character traits through the use of various tests presently considered valuable, and through the development of new tests. It is expected that such research will provide a battery which will classify candidates on a sliding scale. Selection standards can be geared to the manpower pool at any given moment. The end product would be a correction factor for the Aircrew Classification Battery. Thus, individuals with high Stanine scores who possess undesirable personality attributes would be identified, and low scoring individuals on the Stanines who have off-setting desirable personality traits would not necessarily be lost. The painstaking task of identifying these traits, tracing them through years of flying experience, assessing relative values and devising a quantitative scale to predict operational and combat performance -- all of these are major components in this task. Progress in prediction of training adjustment(492) has been reported recently. An extension of this work to combat pilots in the Korean Campaign has been reported by Spark and Niess and will be discussed below.

#### PROBLEMS IN PSYCHIATRIC SELECTION

Because psychiatric selection is a rather controversial field the flight surgeon should follow its development with some sophistication. Therefore, it is appropriate to consider some of the viewpoints which have been expressed. The controversial aspects of psychiatric selection are particularly exemplified in differing viewpoints of the relative merits of detailed initial selection, that is, the 'fine-toothed comb,' as compared with what has come to be known as 'selection in depth.'

Detailed initial selection of the special category of aircrew personnel has much to recommend it. These individuals must possess particular attributes which are not overly abundant in any pool of young men. When accepted, they must begin a prolonged period of training under stresses comparable to combat flying. In addition to

the time involved, there is an expense estimated to be greater than that required to train a physician. To omit detailed screening of these individuals is to reap a harvest of high training costs, not to mention lives and aircraft lost. To accept individuals with good performance aptitudes, but lacking positive personality traits is to assume a heavy burden of hidden costs in inefficiency and lack of leadership. These considerations are obviously important reasons for screening all individuals about to embark on a career in aviation, but are of even greater significance when one is selecting future military leaders. Further, a fine screen approach based on an evaluation battery can be quantified to fit the available pool of manpower, and could be highly selective or only grossly selective depending upon the situation at any given moment.

Those who view intensive initial psychiatric selection pessimistically agree that intelligence and psychomotor coordination can be measured, but feel that there are too many interacting variables in the personality and its environment. Past success in aptitude selection is considered unlikely to be encountered in the area of personality. People change too much, they are greatly susceptible to family, social and political influence, and to good or bad leadership. It has been noted that a neurotic character structure is not incompatible with outstanding performance and that in any operational or combat unit one finds a wide variety of personality types performing well or performing poorly. Further, it is pointed out that Stanine levels were so severely compromised during the Korean War that we could not afford the luxury of any degree of selectiveness even as far as aptitude was concerned, let alone personality traits. Rather than careful initial screening, therefore, a selection-in-depth type of approach has been proposed. Such an approach permits observation of the individual for a period of time while actually in the military situation, and provides a longitudinal appraisal of his adaptability and motivation rather than a momentary one. Appraisal could be accomplished during an initial training period when experienced military consultants would be available, and would arrive at a more realistic assessment. Such a system would take into account the gradations from 'normal' personality to 'abnormal' personality without necessity for specific and final classification. Motivation, or willingness to perform, and morale or enthusiasm of performance are intangible and dynamic and not easily identified by initial selection test procedures.

These, then, are the diverging viewpoints regarding psychiatric selection which the flight surgeon must weigh and evaluate. Careful inspection will indicate, however, that the differences are more apparent than real, and that there is an important role for each approach.

## PSYCHIATRIC SELECTION OF AIRCREW

Thus far few studies have been reported among flying personnel. The US Navy Bureau of Aeronautics studied combat flyers(233) and found that the characteristics of the successful combat pilot were (1) capacity for teamwork and leadership, (2) adequate emotional and social adjustment, (3) motivation for combat, (4) intellectual and perceptual adequacy, and (5) basic flight skills. Flanagan attempted to evaluate combat proficiency by studying bombing errors, promotions and rewards, accidents, casualties and transfer for unsatisfactory performance. However, as measured by these indices, success was not significantly related to high aptitude scores.

More informative has been the study of 150 heavy bombardment combat flyers in World War II by Hastings, Wright and Glueck.(244) They found that their successful flyers tended to be young and without major responsibilities. The family histories of one-half of the group showed emotional instability. Their own life patterns showed emotional instability in half the cases, with psychoneurotic tendencies among nearly a third. The life patterns were not, however, marked by asocial acts. Characteristically, they showed vigor, persistence and physical health. 51% were regarded as 'extroverted,' 29% 'introverted' and 20% were 'rigid personalities.' Most of the men had experienced severe combat stress. 95% developed definite symptoms of operational fatigue and more than one-third suffered severely. 22% admitted losing some efficiency at their jobs, or developing inability to concentrate on their jobs. The three basic personality types (extroverts, introverts, and 'rigid personalities') developed symptoms consistent with what would have been predicted in their respective personalities. No positive correlation was observed between severity of symptoms and severity of combat stress. The authors further observed that:

"...in discussions with Group and Squadron Surgeons it became apparent that even the intimate knowledge they had of flying personnel in the original squadrons and groups that came to England did not help much in predicting those men who would subsequently crumple when the time came for combat. These medical officers frequently remarked that they were surprised by the men who did become psychiatric casualties and were equally surprised that certain individuals whom they had suspected would not stand up to combat, did so with apparent ease. If these observations are correct, and it is believed that they are, it again emphasizes the point that the final criterion of selection for a military aviator is combat flying. It seems doubtful if the natural stresses of flying training and peacetime flying or if any artificial set of tests can be relied upon to eliminate the men who will have insufficient emotional tolerance to combat flying."

Grinker and Spiegel(243) similarly were led to the conclusion that the only test of ability to withstand the stress of combat flying is combat itself.

Sparks and Niess(293) have reported a follow-up study of 111 pilots who saw combat in Korea. These men were from a group of 5000 who were studied during flying training.

"The data obtained included combat proficiency ratings by squadron commanders, operations officers, and peers; objective performance data from squadron files; and clinical appraisals of proficiency in combat, plus any information available on the men's emotional life. Only four of these 111 pilots were found to be actual psychiatric failures in combat. Of the four failures, one was a psychopath, one had a severe anxiety reaction, one was an alcoholic, and one was a borderline psychopath who, concluding after the first mission in combat that people "got killed doing this," asked for and obtained release from his combat duties. The investigators attempted to make as thorough a study as possible of each pilot where found in the combat zone. The data thus obtained concerning each pilot's proficiency in combat was then correlated with the previously obtained test results and the predictions made previously for these same individuals. Sufficient data for analysis was obtained for 65 of these pilots. Interestingly, the top jet ace of the study (a double ace) was a predicted failure. The four failures were all predicted successes. A correlation between the predictions at training level, and the combat proficiency estimates was -0.43, significant at the 5% level of confidence."

"The pilot Stanine test yielded only one coefficient (plus .35) of marginal significance (10% yield of confidence) between the combat psychologist's final appraisal and Stanine scores. Correlations of peer-superior ratings of flying proficiency in training and combat were significant at the 1% level of confidence between training upper classmate ratings and combat peer-superior ratings on the trait of likeability (plus .57) and between training classmate ratings of flying proficiency and the combat psychologists' final ratings of proficiency in combat (plus .52). Previous psychologic test data, clinical appraisals, and predictions failed to correlate at a significant level of confidence with either the objective combat data of the presumably valid estimates of squadron commanders, operations officers, and peers in combat." (These investigators conclude that) "Predictions...of combat proficiency, based on psychiatric data adequately oriented to combat, can be made with sufficient precision to be of value in screening...The significant (1% level) positive correlations between the clinical appraisals of

the combat psychologists and the peer-superior appraisals indicate that there may be cause for hope that it would be possible, given sufficient insight into personality as involved in combat stress, to do a better job of psychiatric screening for combat duties than has been done before. The combat data obtained in Korea suggest that there is a real question as to whether stability as conceived of in civilian society is an adequate basis for psychiatric screening for combat duties. Investigations should be made concerning the specific effects of intense, prolonged fear and of how they involve their unconscious companion, anxiety; as well as of the effects of intense prolonged hostility and release of aggression, and of how they involve their unconscious companion, guilt. How do these emotions affect the structure and stability of the personality as the ego strives to maintain integrated behavior for survival and success in combat? From this perspective, some men with rather disturbed personalities may be more insulated against crippling anxiety in combat than are some normal persons, even though the combat data from Korea indicates that pilots without symptoms tended to do better."

"If it is true, as postulated here, that we do not as yet understand many of the basic psychodynamics of combat proficiency, how then are we to screen out those predisposed to breakdown? The present situation seems to be that we are only able to identify those who prove themselves unable to carry out their duties for psychiatric reasons, or appear to evidence a high immediate probability of not being able to do so. Even here caution is called for. In this study there were a number of highly disturbed individuals who not only were carrying on but were doing so in a superior manner, and who finished their tours successfully, although the cost to them in anxiety was very high. In some instances the very anxiety involved appeared to contribute considerably to the performance of the pilot. In this regard, it was interesting to note that some men with obsessive-compulsive personalities did very well in B-29's, but none were seen to do well in fighters; conversely, a number of those with 'psychopathic personalities' did splendidly in fighters but were not seen to do well in bombers. Possibly there are elements of stress which vary from task to task, so much so that men with certain personality syndromes are better equipped for certain types of combat flying."

These viewpoints well illustrate the inadequacy of present predictive tests, as well as the vagaries of our understanding of the emotional attributes of the successful flyer. It further highlights the personality itself as the major area for concern in the adjustment of trained flyers, and matters of aptitude and job performance recede in relative importance.

STUDIES OF SUCCESS AND FAILURE  
AMONG NON-FLYING GROUPS

At the risk of coloring the overall picture of selection as it applies to aircrew, other reports will be discussed because of their influence in a general way on the overall problem. Nevertheless, the reader should be cautious in interpreting any direct carry-over of studies of ground personnel to those of members of aircrew.

Wilkins has described the selection of Marine Corps Platoon Leaders.(302) The problem was one of determining the minimal physical, intellectual, social and character standards compatible with adequate performance of hazardous Marine combat duty. Certain requirements were clearly recognized, for example, sturdiness, ability to learn quickly and permanently, cheerfulness and in-group-mindedness. In 1949 the US Marine Corps established a systematic program to identify those enlisted men best qualified for officer commissions. In this program, a 3-week screening program was developed comprised of tests and field exercises aimed at assessing physical stamina, level of intelligence, ingenuity, forcefulness, command presence, leadership of structured and leaderless groups, ability to communicate ideas and awareness of current general and strategic problems. At the conclusion of this screening period, a recommendation for commissioning might be made. Officers from this screening program were later found in substantial numbers in the top decile, quartile and half of the Basic School where they were competing with men from the US Naval Academy, the Naval ROTC, and OCS graduates who had received college training. Several ratings were made of these men during and after the screening process. These were later compared with performance in combat. Among the ratings were: standing in the screening course, the judgment of each man by his peers, a medicopsychological judgment, a psychiatric rating, a Rorschach rating, Basic School academic grades, leadership rating and final grade.

The follow-up of combat proficiency was made on 66 Second Lieutenants with the First Marine Division in Korea. All had been in some aspect of combat. The rating consisted of fitness, efficiency under stress, emotional maturity, drive, expression of feelings, flexibility and respect of peers. There was found to be a correlation of 0.34 between overall opinion of the man as a combat officer in Korea and the final screening assessment. Correlations for the various subcategory ratings during screening were: screening course standing, 0.33; peer judgment, 0.38; medicopsychological judgment, 0.14; psychiatric rating, 0.17; Rorschach rating, 0.17; Basic School final grade, 0.15; Basic School academic grade, 0.07; Basic School leadership grade, 0.17.

Hence, for certain situations a man's peers would seem to be the best assessors of his potential. A number of paper and pencil

tests proved less efficient than had been expected, although they were useful in maintaining the stress of the intensive screening process. Certain items which had looked promising for making a distinction between failure and commissioning were useless in combat. Among these were education of the father, participation in football, baseball or basketball, whether the individual had been a team Captain, matters of religious affiliation and self-estimate of strength, endurance and courage.

Brill studied the importance of predisposing factors in the records of 1000 cases of psychiatric breakdown in World War II. (291) 13% appeared well-integrated before service, 34% showed neurotic traits, and 10% had suggestive neuroses. Only 15% had clearly recognizable overt neuroses and 20% showed pathological personalities.

Aita (266) studied the performance of two groups of 100 soldiers. In one group success had been predicted, in the other, failure. In the predicted success group, 5% failed, as compared with 21% among the predicted failures. However, in the unsuccessful group 49% rated average and 30% were considered outstandingly successful.

Fry (291) investigated the performance of 2017 men who had been patients of the University Psychiatrists at Yale and Harvard. 90% of these men served adequately or better from the time of their induction or enlistment until separation. 68% served as officers. In the University Psychiatrists' judgment, 541, or 26.8% of the 2017 cases reviewed should have been rejected. Actually, 333 or 16.4% were rejected. The University Psychiatrists' rejections included almost all 'psychotics,' a high percentage of the 'homosexuals,' and more than one-half of those diagnosed as 'psychopathic personalities' or 'probable homosexuality.'

Eanes (291) studied 2054 men who were inducted into the service after having been rejected at least once previously because of a neuropsychiatric condition. 21% of these were later discharged for psychoneurosis, and the remaining 79% served successfully. Over 50% were rated as above average or excellent.

Hunt (279) found that brief psychiatric interviews were valuable in reducing the number of later neuropsychiatric cases, but that beyond a certain point a curve of diminishing returns appears. For example, while Great Lakes Naval Training Station discharged twice as many men as Newport Naval Training Station, the later psychiatric attrition rate of Great Lakes seamen was only diminished by one-sixth as compared with Newport. Thus, while selection reduced the neuropsychiatric casualty rate, there was an optimal point beyond which the severity of selection standards did not yield comparable results in reduced psychiatric casualties. In a study of a group of marginal individuals who were later sent to duty, Hunt found a much higher attrition rate, but nevertheless the great majority served without breakdown. One group of 242 such men had a neuropsychiatric casualty rate of 12.8% during two years of

service which was seven times that of a normal control group. Nevertheless, 873 served without adjustmental difficulties severe enough to merit a discharge.

In summary, the development of selection as a science has been reviewed and its importance in Aviation Medicine has been cited. In passing, reference has been made to controversial aspects. A need exists for an approach to selection which employs the best features of a comprehensive initial assessment and of a well-administered program of screening-in-depth. That combat, or on-the-job follow-up studies offer a rich opportunity to expand our knowledge of human adjustment is apparent from the many informative studies to which reference has been made. Step-one of the psychiatric selection program for aircrew has yet to be completed since we still do not know the personality attributes of the successful military flyer. A selection program, however, can never do more than supplement a personnel program which places continuing emphasis on sound principles of preventive psychiatry, and which strives to increase leadership qualities and the motivation of each man to serve. No amount of research will divorce the military from psychiatric problems in the foreseeable future, but these problems are of sufficient magnitude that they deserve to be met with all means available.

## CHAPTER XIII

### ADAPTABILITY RATING FOR MILITARY AERONAUTICS

The Adaptability Rating for Military Aeronautics (ARMA) is the flight surgeon's contribution to the field of psychiatric selection. It is of vital importance, therefore, that the aviation medical officer understand the techniques employed and acquire a reasonably standardized method of procedure. He must learn what to look for and be able to weigh the factors, both positive and negative, which influence a man's adaptability for military flying. Finally, he must appreciate the limitations of this examination procedure, as well as its particular values.

Disqualification for neuropsychiatric reasons has long been one of the major problems limiting the available pool of candidates for flying training. In the physical examination for flying during World War II one-fourth of all applicants were rejected for neuropsychiatric causes, and almost half of the casualties among flying personnel were wholly or largely psychiatric. But it must be emphasized that symptoms and signs of neuropsychiatric significance form only one part of the total picture which the flight surgeon must appraise in administering the ARMA.

AFM 160-1 defines the ARMA as a "clinical assessment the results of which are to be recorded on the examination for flying training. It is a personality evaluation which takes into consideration all the facts obtained on the medical, psychological and psychiatric histories, and on the general physical, neurological and special examinations. In addition, the examinee's zeal for flying and his maturity, stability, and drive in the face of the obvious hardships and hazards of military aviation must be determined. With all of this information a final rating of adaptability to flying military aircraft may be made."

Among candidates who receive an ARMA are applicants for flying training, Class I and IA; civilian trained pilots; aerial refueling operators; radar operators, if they are at times in control of aircraft; and air traffic control operators. AFR 160-115 places special emphasis on the ARMA when examining candidates for the Air Force Academy and prescribes that a sub-standard history may be reported to the applicant as disqualifying.

Bearing in mind the two-fold purpose of the ARMA, a disqualifying rating must be given in the case of certain neuropsychiatric contraindications to flying such as chorea, phobias, etc. (See Chart III) The Medical Officer may, in addition, recommend a disqualifying score on the basis of his clinical judgment of the inaptitude or inadaptability of the applicant derived from biographical and somatic facts gathered during the course of the interview.

**CHART III**  
 (From AFM 130-1)  
**NEUROPSYCHIATRIC DISQUALIFYING DEFECTS**

CATEGORY	LOOK FOR:	ESPECIALLY:	DISQUALIFY
Psychoneuroses	History of obsessions, compulsions, phobias nail biting, excess sweating, conversion blindness, deafness, aphonia, paralysis or anaesthesia; irritability.	Degree to which have influenced past judgment. Conversion symptoms. Obsessions and compulsions.	x x
Psychosomatic	History of peptic ulcer, colitis, constipation, tachycardia, hypertension, hypotension, eczema, hypochondriasis, vague aches and pains, multiple operations, frequent visits to physicians, pressure feelings, unusual fatigability.	Degree to which have influenced past adjustment. Vasomotor instability. Migraine. Motion Sickness.	x x x
Character and Behavior Disorders		Antisocial personality. Cyclothymic personality, or major mood disturbances. Schizoid personality. Alcohol or drug addiction.	x x x x
Psychosis		2 or more instances in immediate family. History of psychosis or attempted suicide.	x x
Intelligence		Seeming below required standard.	x
Special Signs	Psychogenic amnesia  Sleep disturbances: Somnambulism Pavor nocturnus Insomnia Enuresis Tic, habit spasm, mannerisms Stammering	2 or more times after 10 or in yr of exam.  Severe, prolonged.  Repeated past 10 Marked degree  After 10	x  x  x x x

and the physical examination. Hence, the examiner must see his subjects initially through the eyes of a clinician seeking symptoms and signs of disease or predisposition to disease. But the examination does not end with this. It pursues an exploratory course in which the flight surgeon studies the examinee as a future officer and leader. He is concerned with potentialities and limitations within the range of so-called normal individuals; with stability under routine conditions as well as in situations of combat or other stress. He must see the examinee as a social being about to enter the same society as his own and attempt to foresee his capacity to "blend" with his surroundings.

At the conclusion of the clinical interview, the flight surgeon must decide whether this is an individual who should fly. It should be emphasized that the examiner does not try to evaluate ability to learn to fly. Such assessments of intelligence and psychomotor performance are better accomplished by the Aircrew Classification Battery. The ARMA viewpoint goes beyond this to more remote considerations (e.g., personality, emotions) and attempts to anticipate long-range factors which lead to failure at advanced stages of flying experience.

McFarland has analyzed(23) these critical components of aircrew duties in detail including among them qualities for which adequate selection tools have not been devised: emotional control, presence of mind, perseverance, interest, attitude, character and leadership.

#### PRE-SELECTION FACTORS IN APPLICANTS FOR FLYING TRAINING

AFM 35-7 describes in detail the application procedures for flying training. The age, marital status, education and moral character of the applicant are ascertained. Throughout the period of application and initial screening the applicant is assisted by such agencies as USAF Aviation Cadet Selection Teams, Recruiting Stations and Recruiting Main Stations. The applicant agrees that he will, upon completion of training, continue to serve in his particular capacity for a period specified by the Air Force. At the Recruiting Main Station the applicant's qualifications are reviewed and medical examination is performed including serology and chest x-ray. At this time he is considered tentatively qualified and is seen by an Aviation Cadet Examining Board. This Board varies in its composition but should include at least one medical officer who is qualified in aviation medicine. The Board may at times be a "One-Officer Board." Certain applicants, such as college graduates may not be required to appear before it. Following this the applicants are transported to the nearest Personnel Processing Unit where the physical examination for flying is conducted and the Aircrew Classification Battery is given.

### THE ARVA INTERVIEW

The flight surgeon's interview represents a critical moment in the career of the prospective military flyer. It is his first contact with a major supporting element in his new environment, and occurs when the applicant is receptive and impressionable. The meeting should therefore be clearly purposeful and therapeutic in its intent. The flight surgeon must recognize the Air Force setting as very foreign to the applicant. The latter is unlikely to have any very comprehensive appreciation of this environment. The motives for applying for training may be healthy or they may be reactionary and symptomatic. Only distant goals may be appreciated and present considerations overlooked. Perhaps the applicant sees the Wings, the uniform, the pay and the prestige, but does not comprehend the months of physical conditioning and officer training. The rigors of primary, basic and advanced training may be only a hazy segment in an overall picture. A realistic recruiting program which presents a clear and accurate picture of the career of an Air Force flying officer will assist the flight surgeon by bringing to the interview individuals who appreciate the duties, hazards, rewards and demands which lie ahead.

The interview surroundings should be conducive to relaxed discussion of those areas in the applicant's life and character which are likely to influence his adaptability to military flying. There should be a quiet, comfortable office available, free of the disturbing influences of the telephone or visitors. Despite the ever-present need for maintaining a schedule the interviewer should cultivate the impression of leisure. The manner in which the applicant is greeted by his interviewer conveys this subtly, without need for verbal expressions. The interviewer will anticipate the reticence of the applicant and recognize an essentially normal young man who is motivated to become a flyer, who feels impatient and uncomfortable about this portion of his examination and questions the need for it. Often the introductory remarks will determine whether effective rapport can be established, and the interview be of any value. During the interview the examiner should be active only to the extent necessary to maintain productive expression of thought and feeling on the part of the examinee.

Time Factor. Psychiatrists may differ on the amount of time required for adequate psychiatric evaluation of a patient but in general agree that it involves more than one hour of interviewing, usually on more than one occasion, and includes observation in a non-clinical setting. It is helpful, in addition, to have the observations of friends, family or others who have followed the patient closely. The ARVA interview obviously cannot afford this expenditure of time, but nevertheless must have an irreducible minimum period within which it can be said that an ARVA rating has been determined. This minimum time is about 30-40 minutes, and an

examination done in less time should not be referred to as an ARMA interview. To short-cut the time allowed for the ARMA is equivalent to placing an otoscope in an examinee's ear and failing to turn on the light. The interviewer can in this period cover superficially various areas of importance in the subject's past and present life, and arrive at some opinion of the individual's qualifications, or decide if he should be referred to a psychiatric consultant for further study.

The "Standard Interview." Over a period of several years of application of the ARMA, certain areas of personality and historical background have been recognized as of basic importance. Rafferty and Deemer(290), through statistical treatment of ARMA interviews, have derived a table of 31 items. These can be grouped as a check-list which may be used by the individual examiner and arranged in a logical fashion for an interview beginning with discussions of interest in flying and proceeding to such topics as family, school and present matters. Such a check-list is demonstrated in Table 5. As a rough guide, the interviewer can check the various items as favorable, or of no significance insofar as the applicant's adaptability is concerned.

Introductory Remarks and Explanations. At the outset the interviewer should explain to his subject that acquiring some understanding of him as a person can do much to determine his ability to fit his chosen career. Flying should be looked upon as requiring special skills, attitudes, character traits and goals not possessed by everyone. It is no disgrace to fail this requirement, however, it is not helpful to the individual and certainly is deleterious to the training program if the individual's capacities point him in some other direction. This should be investigated early and is a fundamental goal of the ARMA interview. It may seem that this type of approach will discourage previously well-motivated applicants; rather, it tends to bring to light those instances where motivation is not strong and where maladjustment might be anticipated later in the training program. The flight surgeon should emphasize the prophylactic value of this interview and attempt to undercut the applicant's natural tendency merely to look upon the interview as a stumbling block.

Review of Standard Forms 88 and 89. The ARMA should be administered at the conclusion of the physical examination for flying and after the Aircrew Classification Battery has been administered. This will serve two purposes: if the applicant has already been disqualified for some defect with little likelihood of waiver, or if he has failed a neuropsychiatric examination, the interview may be omitted. Deemer and Rafferty(289) have reported that the various items in the ARMA interview have little validity as predictors if subjects have a Stanine level of 7, 8 or 9. Possibly, then, high Stanine applicants might be given a slightly shorter interview. These maneuvers would ease a tight interview schedule and allow the examiner more time for applicants who do not fall into the higher stanine bracket. The standard forms will provide substantial background for the interview.

TABLE 6

1. Introductory Remarks and Explanations.
2. Review of Standard Forms 58 and 59.

+	-	0	3. The A&A Interview
			<p>Flying interest or experience</p> <p>Tolerance of flying, hazards and deprivations</p> <p>Previous military experience</p> <p>Past History:</p> <ul style="list-style-type: none"> <li>Nationality</li> <li>Early environment</li> <li>Economic status</li> <li>General family history</li> <li>Personal medical history</li> <li>Childhood personality traits</li> <li>Accidents and injuries</li> <li>Ability to recall</li> </ul> <p>School</p> <p>Achievements</p> <p>Employment</p> <p>Present Considerations:</p> <ul style="list-style-type: none"> <li>Social outlets</li> <li>Sports</li> <li>Artistic interests</li> <li>Habits (Tobacco, alcohol, drugs, gambling)</li> <li>Personal hygiene</li> <li>Marital matters</li> <li>Sexual problems</li> <li>Religion</li> <li>Conflicts and reactions</li> <li>Moods</li> <li>Feelings of fear, anger, aggression</li> <li>Disciplinary trouble</li> <li>Philosophy of Life</li> <li>Personal and family goals</li> <li>Self-evaluation</li> <li>Emotional reactivity</li> <li>Flow of thought</li> <li>Tact</li> <li>Poise</li> <li>Physical habitus</li> <li>Appearance</li> </ul>

## SUMMARY:

Pass \_\_\_\_\_

Fail \_\_\_\_\_

Further Study \_\_\_\_\_

if the flight surgeon will review these before seeing the applicant. The items on personal and family history, symptoms and illness, as well as employment, provide a capsule acquaintance before the interview begins. It is not, of course, a useful check-list around which to structure an ARMA interview.

Flying Interest or Experience. This is a relatively neutral area in which to begin the examination and affords an opportunity for the examinee to relax and relate factual material and to express his feelings about flying.

Tolerance of Flying and of Hazards and Deprivations. These topics give the interviewer an opening wedge with which to study the applicant's ideas of military flying, his tolerance of flying in the past, and any past experiences in rigorous outdoor living, where a premium may be placed on self-reliance and initiative. Tolerance of high speed, turbulence, risks, and taking chances may be studied at this time. The examiner must not place too great a negative weight on the individual without prior flying experience, but must, as with everything in the ARMA interview, evaluate this in terms of the total picture. In World War II, for example, many young men entered aviation without any previous flying experience and rendered outstanding service. Many of these same men returned to civilian life and divorced themselves entirely from active flying. And, indeed, the applicant who has made an all-absorbing specialty of aviation, model plane building, etc. to the exclusion of other social and interpersonal outlets may be much less desirable than the well-motivated applicant who has previously had little to do with aviation.

Previous Military Experience. Many applicants come to the ARMA interview without military background. Those who come from officer or airman ranks, however, will have passed through an experience which will provide the interviewer with some perspective of their adaptability. The examiner should inquire in detail about the type of service, places of assignment and general feelings and reactions to military duties. The interviewer should be wary of the man who sees flying training as an escape from unpleasant duty and who wishes to serve out his time, later to fail in this training assignment. This, again, must be weighed carefully since in all affairs of youth there is a constant struggle for adjustment and for "finding out the answers." Escape into flying training may be transformed at some later date into quite a healthy response. It must be seen as part of the total picture.

Past History. In this general area, one should inquire into nationality. This may, at times, be of considerable importance, particularly where a specific enemy confronts the flyer. The early living environment, the economic circumstances of the family, and the general family history are of interest. The early personal medical history should be reviewed including attitudes toward illness and physicians. Those personality traits of importance in childhood such as temper, submissiveness and so forth should be determined. The

occurrence of accidents or injuries should be evaluated. Lest the interviewer be unduly swayed by some particularly glaring deficiency in the personal and family background of the interviewee, Hastings, Wright and Glueck's survey of 150 successful heavy bombardment combat flyers in the Eighth Air force in World War II(244) should be cited: Interestingly, many of these aircrewmen stated that they had never admitted many points in their histories to medical officers before this particular study. 48% of these men had factors in their family stock or history which would be expected to predispose them to emotional instability. 6% gave a history of psychosis in the family and 35% had alcoholism or nervousness of major degree in the parents. 16% had a home broken by early death of a parent, 11% by divorce, and 15% reported an unhappy home. In the crewmen themselves 57% showed reaction patterns predisposing to emotional inadaptability; 29% had definite or equivocal psycho-neurotic tendencies exclusive of combat reactions; 43% in childhood had somnambulism, temper tantrums or nocturnal enuresis; 34% were timid and shy in childhood, 7% had a major illness after the early childhood period; 7% gave a history of prolonged poor health or 'puniness,' and 33% never participated in rough sports. Significantly, none evinced patterns or episodes of sociopathic behavior.

Turk(300) has reported a study of 2235 aviation cadets, 1051 of whom came from broken homes. Cadets coming from broken homes showed relatively the same success as those in whom the home was unimpaired.

In eliciting the past history, the examiner should be sensitive to breaks in the continuity of the applicant's account. These may indicate periods of conflict which he consciously or unconsciously is reluctant to recall.

School History. Modes of adjustment during this period reflect the examinee's drive, his goals, his utilization of his native intelligence, his social participation, and his relationship to authority figures. Within the time permitted this area should be explored in as much detail as possible.

Achievements. A history of past accomplishments is of considerable significance if these achievements indicate leadership, social responsibilities, a healthy drive toward attainment, and realistic goals.

Employment. Many men in the age group seen for physical examination for flying are not yet old enough to have acquired a stable work history. Their employment may have been sporadic during school vacations or may show frequent changes of jobs because of the instability of youth itself. The pattern may reflect progression from one job to another that offers more, so many factors have to be considered. Among Hastings, Wright and Glueck's crewmembers, 31% had not worked while going to school, and 18% had what is described as an irregular work history.

Present Considerations. This portion of the interview should concern itself with matters in the immediate life situation of the examinee. The interviewer should try to gain a perspective of his social outlets, his interest and participation in sports and hobbies as well as artistic abilities. Mechanical engineering and related interests in general favor a good adjustment. Artistic interests often do not. In an interview as brief as the ARRA examination it is usually not productive to explore sexual matters. It may suffice simply to inquire of the applicant's marital plans. He may be asked about his interest in dating and about his steady girls. In addition one may ask if there have been any problems about sex, matters he has not understood, mistakes he has made in the past, or worries about sexual matters. If the applicant expresses any interest or desire to pursue the subject further, the examiner may follow his lead. Otherwise, in the interest of rapport during the examination as a whole the discussion should proceed to other areas.

Religious viewpoints and the amount of energy the applicant expends in religious pursuits give some understanding of the individual, especially in regard to the flexibility of the personality and ability to appreciate viewpoints other than his own on religious matters. The examiner should judge whether religion is utilized in a healthy or defensive fashion.

At this point in the interview the examiner can begin to seek out the applicant's habitual modes of emotional response to situations of conflict. How does he respond to frustration? Does he tend to internalize angry feelings? Do strong emotions stir up bodily complaints? Does the applicant withdraw from frustrating situations or does he attack them? It is well to ask for specific occasions when certain feelings were experienced so that the discussion does not become too abstract. Hastings, Wright and Glueck(244) concluded that extroversion with great energy and stability was the optimal combination for success. The most essential ingredient was not the pattern followed, the stability, the persistence nor the direction, but the energy with which the business of living is conducted.

The applicant's philosophy of life, his personal goals and those which his family hold for him are of importance especially for a career Air Force flying officer. Despite present feelings of interest in the Air Force the applicant may be strongly influenced by prior goals, particularly if his family's energies have been heavily invested in these as well. This is particularly true of college men who have directed their education toward goals which have little in common with the duties of an Air Force officer. To expect such individuals to shed the cloak of many years of diverging orientation would be to place the examiner in a position of being unrealistic.

Objective Findings. At the conclusion of the interview, the examiner should note in summary what he has observed of emotional reactivity and of flow of ideation and self-expression. The examinee's appearance during the interview, his poise and tact should also be

noted. In terms of the findings of Hastings, Wright and Glueck, the examiner might well measure the individual and compare him to the flyers studied in the Eighth Air Force who were "unusually vigorous, aggressive, persistent and healthy in body."

#### INTERPRETATION OF THE ARMA INTERVIEW

Having conducted the brief interview which has been described the flight surgeon must then summarize his impressions and conclude whether the applicant shows an acceptable degree of adaptability for military aeronautics. In so doing the interviewer must be alert to those reactions within himself which unconsciously prejudice him for or against the examinee. His conclusions should be free of unconscious bias, which is equivalent to stating that the interviewer must be a stable, well-rounded individual who can approach varying personalities with reasonable objectivity and relatively few pre-conceived opinions. Particular pitfalls which must be avoided are the tendency to over-identify favorably with the applicant who seeks to please. This may mask an undesirable dependency need in the applicant. On the other hand, the applicant who reacts somewhat negatively to authority may appear resistive during the interview and create reverberations in the interviewer which cause him to disregard the applicant's independent strivings and ability to mobilize hostility. These qualities, while not always desirable, can be of considerable value in a combat flyer, with the ever-present stipulation, however, that these remain within limits.

Deemer and Rafferty have likened the process of clinical evaluation to a highly complex factorial analysis. Among the many biographical and social data gathered during the interview only a few *per se* were found to have prognostic value. Their factorial analysis indicated that in general the final judgment depended on two elemental factors: (1) poise, vaso-motor stability and body control; (2) and achievement, education, business success, and adjustment. The efficiency of psychiatric judgments did not transcend the efficiency of all information gathered during the interview when compounded statistically. The clinical impression was as a "whole, equal to the sum of its parts," in that the interviewer did not attach sets of weights to various observations of the interviewee which were more efficient than statistical sets of weights. In a study by the RAF of a clinical assessment similar to the ARMA(229) three items on their numerical scale showed a significant relationship to pilot success. These were stammering, vocational instability and motivation.

#### SCORING THE ARMA INTERVIEW

At this writing, the Air Force continues to use a scoring system based on a perfect score of 200 points, with a cut-off score of

160, below which the applicant is failed. The point system, as will be pointed out subsequently, has nothing to recommend it beyond the fact that it compels a certain appearance of standardization. Chart III indicates those psychiatric disorders in the present or past which require disqualification according to AFM 160-1. It will be seen that there is considerable flexibility in these requirements, the yardstick being the magnitude of symptoms and the degree to which these have interfered with past adjustment. Item 72 (Psychological and Psychomotor) of Standard Form 88 should not be confused with Item 42 which is the psychiatric examination. The following are examples of proper form for recording the score in Item 72 of Standard Form 88, and of the explanation to be cited in Item 74:

"Sat. ARMA, 160 (or above)," using the abbreviation "Sat." for Satisfactory.  
"Unsat. ARMA, 159 (or lower)."

Explanations (Item 74):

"History of fainting on 3 occasions with inadequate cause."  
"History of severe, prolonged somnambulism."  
"Episode of amnesia within year of examination."

In addition to historical items of importance, the reason for disqualification listed in Item 74 may be a psychiatric diagnosis provided the interviewer has obtained sufficient information to establish this. If this is the case, Item 42 will be noted as "abnormal." If trends are noted pointing toward a particular diagnosis, but the full details are not available because of the demands of time, the use of the term, "Not suited for military service, because of marked emotional instability, marked antisocial trends, marked passive-dependency, etc.," may be employed.

Since applicants sometimes gain access to their examination reports, the examiner may find it expedient to use certain semantic maneuvers such as, "Arrested personality development" where there are strong homosexual trends evident, or "Poor achievement" in the case of an individual who is intellectually inferior.

The majority of applicants who are seen by the flight surgeon for administration of the ARMA will be found qualified. Leemer and Rafferty reported that the usual predicted failure rate on the ARMA was approximately 5% although in their study under special conditions the rate was 36%. The examinee should be given the benefit of the doubt and it is well for the flight surgeon to refer questionable cases to a psychiatric consultant, unless the defects are particularly outstanding or the manpower pool is sufficiently large to permit a high degree of selectivity. Nevertheless, a failing score on the ARMA may be the only reason for disqualifying an applicant in the physical examination for flying and is valid as such.

### HISTORICAL NOTES

In the US Army Air Corps in the 1930's a numerical rating of flying adaptability was generally not given. Berman(258) has reported that candidates for flying training were rated as satisfactory, unsatisfactory, or questionable in flying adaptability. The rating was based on a 200-point scale as follows:

Personal and family history . . . . .	20
Judgment . . . . .	20
Emotional content . . . . .	20
Attention . . . . .	20
Intelligence. . . . .	15
Resistance to emotional stimuli . . . .	15
Alertness . . . . .	15
Precision . . . . .	15
Ability to relax. . . . .	10
Psychomotor activity. . . . .	10
Temperamental assimilability. . . . .	10
Reaction time and accuracy. . . . .	10
Coordination response . . . . .	10
Equilibrium . . . . .	10

A score of 160 points or better on this scale was considered satisfactory. A slight positive relationship was found between this flying adaptability rating and success in aviation training. A study of the predictive efficiency of four flight surgeons administering this rating in the period 1931-1933 was as follows: flight surgeon A,  $Q=0.44$ ; B, 0.36; C, 0.39; and D, 0.22.\*

With the development of aptitude tests during World War II the emphasis on certain aspects of the "Flying Adaptability Rating" changed. The new "ARMA" was concerned with strictly medical and neurological considerations. The Flight Surgeon's Manual of World War II (AFM 160-5) set forth the following scoring procedure; from a total score of 200 points, the following numerical deductions were to be made where appropriate:

\*Of interest are the remarks which the examining flight surgeon recorded when giving this "Flying Adaptability Rating:" Case 1, "Satisfactory, cheerful; fairly stable; slightly tense; cooperative; frank; fairly energetic." Case 2, Questionable; mentally he is only moderately alert and penetrating; attention, fair; deliberate; conscientious; fairly persistent; somewhat subdued; quick; lacks aggressiveness. Case 3, Unsatisfactory. Vague; superficial; dull; unready; hesitant; sluggish; slow; impulsive; controlled; yielding; unstable; introvert; punctilious; serious; somewhat resistive; tense."

Nervous and mental disease in family . . . . .	(10 - 20)
Alcoholism in family . . . . .	(10 - 20)
Criminality in family. . . . .	(10 - 20)
Insomnia in applicant. . . . .	( 5 - 10)
Hay fever, asthma, or other allergy. . . . .	(20 - 40)
Enuresis . . . . .	(10 - 40)
Somnambulism . . . . .	(20 - 40)
Alcoholism . . . . .	( 5 - 40)
Fainting . . . . .	(15 - 40)
Unconsciousness. . . . .	(12 - 40)
Fracture of skull or severe concussion . . . . .	(40)
Phobias or obsessions. . . . .	( 5 - 40)
Nail biting. . . . .	(10 - 20)
Amnesia. . . . .	(20 - 40)
Fits, spasms or convulsions. . . . .	(20 - 40)
Speech Defects . . . . .	(10 - 40)
Chorea, poliomyelitis, encephalitis, meningitis. . .	(10 - 40)
Arrests. . . . .	(10 - 40)

Comparison of these two systems of scoring emphasizes the different points of view embodied in the present day ARMA, i.e., the aptitude - personality or positive approach, versus the clinical neuropsychopathological or negative approach.

#### VALIDITY OF THE ARMA

In general, the ARMA is considered to have somewhat better than a low positive correlation. In Berman's study from October 1931 to March 1933, 456 candidates were eliminated from basic training for failure in flying; 444 were graduated. Of those in whom elimination would have been indicated by the "Flying Adaptability Rating," 40% graduated. The examination would have judged 61% of the graduates satisfactory. If candidates with unsatisfactory "Flying Adaptability Ratings" had not been allowed to start training, 18% of the graduates would have been lost, and the over-all elimination rate would have been reduced from 51% to 48%.

RAF studies(229) have shown that assigning a score to various areas bore no relationship to success or failure, whereas the over-all assessment did show a low positive correlation. Single traits were of little prognostic value, certain pairs of traits had some significance, and combinations of 5 findings such as previous nervous breakdown, timidity, lack of persistence, affective lability and psychological immaturity were usually a basis for a valid disqualification.

Deemer and Rafferty found that psychiatrists by careful interviews were able to do nearly as well in predicting ability to fly as extensive objective test batteries. There were no valid items in their analysis of the interviews, however, two derivative items, the

clinical impressions of predicted success in training and success in combat had a high validity. The validity of the ARMA through all stages of training compared favorably with objective test batteries. The contingency coefficient for ARMA versus the criterion was about 0.4, as compared with the correlation coefficient for the Stanine versus the criterion of about 0.6. Subjects who had already been screened on the basis of psychological test batteries were less easily screened by the ARMA. All items became useless as predictors when only subjects with Stanines 7, 8 and 9 were examined. This was the upper 23% of the flying training population.

#### SUMMARY

The ARMA is primarily an empirical device the validity of which depends heavily on the experience and clinical judgment of the examiner, because reliable criteria of susceptibility to psychiatric breakdown do not exist or are of limited applicability. The future may bring better understanding of the factors in the individual and in his environment producing breakdown, and the interaction between these interpersonal and environmental factors. At present, the ARMA technique suffers from proponents who expect too much of it, and opponents who overlook its obvious value.

The ARMA suffers from improper administration, particularly an inadequate amount of examination time, lack of training on the part of aviation medical officers who administer it, and lack of a 'standardized' approach to the procedure.

It is generally agreed at the present time that there is no scientific basis for the numerical score, and that scoring is actually based on a pass-fail criterion.

The concept of an interview as part of the physical examination for flying is valuable and should be retained. Despite the fact that the validity of the ARMA is dependent upon the training and abilities of the interviewer, and is costly in time and personnel, it is highly flexible in response to changes in candidate population, to changes in flying requirements, and to changes in training objectives. The interview technique can, therefore, alter its emphasis from prediction of success in the Air Force Academy, to success in flying, to success in combat, or to emphasis on flying safety.

## CHAPTER XIV

### PSYCHOTHERAPY IN AEROMEDICAL PRACTICE

#### THE PSYCHOLOGY OF SICK CALL

The flight surgeon spends much of his time in out-patient care and sick call duties. Therefore, he cannot be too familiar with some of the psychological problems inherent in this work. Goldman (401) writes of the psychology of sick call from his experience in the US Army:

"...An enlisted man who went through training in this center came to my office to work. I asked him to give some information about the trainee's reception of various matters. He stated that the largest gripe in the Army had to do with sick call. He said, 'You doctors, by your own admission, say that there is very little real malingering in the Army. The soldier who goes on sick call really believes he is ill. He can't understand why he gets nothing but a Grade-A sneer from the doctor and a back-to-duty order. He gets mad. He tells his squad. The squad gets mad. The squad tells the platoon. The whole damn platoon is angry over an alleged injustice to one of its members who they all believe had the physical ailment and was entitled to treatment. This resentment takes the form of disinterest in instruction, minor insubordination and low morale. The soldier felt he was really ill. He doesn't want to be told he is a gold-brick when he honestly feels he isn't. 5 seconds on the doctor's part, a smile instead of a sneer, a little comforting advice, and perhaps some medication can avert trouble for the whole platoon. Soldiers and medical officers cannot be over-instructed on how to go on sick call, what to expect and why to expect it. Nothing so stirred up my platoon as a whole as a slight to what we considered a sick companion-in-arms.'

"'At my induction here at camp we were bombarded with solemn warnings to see the doctor whenever we felt ill. Some poor naive babes-in-the-woods took this seriously, and found to their chagrin that it was just advertising. The platoon corporal, the platoon sergeant, the 1st Sergeant and the Company Commander was each in his turn a barrier to be surmounted before one's name was put on the sick book.'"

"A soldier may go on sick call because he feels bad. He feels bad because things are too much for him. Perhaps he is slow and inapt, mentally deficient, or, if newly inducted, bewildered, tense, and unable to keep up with the pace of the Army. He is afraid he may mess up, afraid he may lose self-

respect; in other words, he is 'hurting.' One might say his Ego is hurting. But the Ego as such cannot hurt, so he feels it in his head or back. He goes on sick call because in civilian life he would go to the doctor when he felt bad. But the doctor cannot find anything wrong with the stomach, or head, or back. When told this, he feels that his integrity and honesty are being challenged. Therefore, he must defend his symptoms, he insists more than ever that he is sick; he feels the doctor did not look carefully enough; resentment grows, the symptoms continue, the cycle goes on. It is a daily experience of many dispensary physicians."

The importance of sick call as the front line of medical service is clear from this example. The flight surgeon may well anticipate that one-third or more of the cases he handles in the dispensary will have psychological problems of primary importance. It is far better, from a psychological standpoint, to render care to these people on a dispensary basis where they can gain reassurance from thorough medical attention, but yet not have their fears kindled by unnecessary hospital care or referral to the specialist.

#### PATIENT-PHYSICIAN RELATIONSHIPS

The patient coming to see his doctor brings much more into the situation than appears on the surface. There are the realities of course, but beyond this the patient invests the doctor with deeper symbolic meanings in terms of his own past experiences with significant people, especially those who have filled authoritarian, parental roles. If the patient has dealt with authority by conflict during his life, he will tend to recreate elements of this in his dealings with the doctor. This may manifest itself in failing to take medication or to follow instructions as directed, or in a myriad of other ways in which a patient can resist treatment. He may provoke the doctor subtly so that the doctor's own negative feelings begin to be expressed without the latter's conscious awareness.

Some patients react to authority with passivity and compliance, and regard the doctor with the awe reserved for some higher being. The doctor may find his own Ego quite inflated until a later date when the hidden hostility in this compliance becomes manifest through subtle thwarting of the doctor's treatment program. This again can stir up hostile feelings within the doctor which may be vented upon the patient in some covert manner. These attitudes on the part of both are irrational. They do not make sense if one views the patient-physician relationship simply as one of a sick person who comes to an expert to be healed. And yet, in one form or another, these emotional distortions lurk in the shadows of every problem in clinical medicine.

The patient reacts at times to his illness with irrational behavior. Although common sense might indicate that the patient wants to get well, one may be surprised to see the patient regressing, seemingly enjoying the care and attention he is receiving and subtly prolonging the treatment process. This again can be understood in terms of the patient's personality and previous experiences. Patients may also over-react in the opposite direction, i.e., deny illness and display a phenomenon known as "flight into health." In this case fear of illness is so great that the patient cannot tolerate an awareness of his condition. He becomes over-active, ignores medical advice and thereby aggravates his condition. The doctor faced with this situation feels his authority challenged. In anger, he may try to frighten the patient into compliance, and reinforce the fear that is already overwhelming the patient. In this situation the patient may respond with an acute depression, or may break completely with his doctor at a time when he badly needs him.

It is obvious, if one thinks about the many ways in which patients handle illness in terms of their own personalities, that the doctor must constantly individualize his approach to each particular problem. But more is needed than flexibility. The doctor must learn to recognize his own feelings in the patient-physician relationship, since these are so vital to successful medical care. The doctor is never a block of granite; he is constantly reacting to his patients and they to him.

In the military service the doctor may feel at a disadvantage since he often sees patients who had no choice of doctor. The doctor may have a need to be sought out for help, and feel uncomfortable in this seemingly impersonal, "socialized medicine" atmosphere. Within a short time, however, the doctor comes to realize that the same strong professional relationship can be created in this setting, and that the problem was more one of inner phantasy than of outer fact. If the doctor is new, he has an understandable need to demonstrate his competence to his professional colleagues. If he runs headlong into one of the difficult problems in patient-physician relationships, a so-called "dissatisfied patient," he feels seriously threatened unconsciously, and is in danger of responding to what he erroneously considers a personal reflection upon himself. There are two main dangers in this emotionally-charged situation: the doctor may unconsciously forget or ignore the patient, or he may show his feelings by overtreatment and diagnostic efforts far beyond those appropriate. Worst of all, he fails to recognize the problem for what it really is -- a disturbed patient-physician relationship.

Although the doctor is not a block of granite, there are times when he must appear very calm in situations where the patient is very anxious. It has been observed repeatedly that anxious patients tend to make misinterpretations of much of what the doctor does. Explanations are very helpful in this regard. But if the doctor reveals his own anxiety by diagnostic or therapeutic maneuvers which he cannot explain to the patient in understandable terms, and which,

indeed, he has trouble explaining to himself, this has the effect of heightening the patient's anxiety. The doctor must train himself against participating in the patient's anxiety. He must, in brief, learn to be inactive when the situation calls for it. Much of the successful practice of medicine requires masterful inactivity and outward calm supportiveness.

A word of caution to the flight surgeon: as the "team physician," he works in close support of his patients on a level that is often closer to friendship and cameraderie. This close relationship can be a two-edged sword in that a truly professional patient-physician relationship may be difficult to preserve. The flight surgeon maintains this relationship best if he remembers that he is a part of his group, but not wholly one of them. He must be closely identified with his men, yet distant enough to be objective in his decisions. The flight surgeon who cannot fill this professional role finds that his own personal problems become known to his flyers and his ability to help them is limited accordingly. The flight surgeon, then, must keep many problems to himself, and yet have sufficient outlets for his own satisfaction that he does not feel thwarted and frustrated. It is a task for the Air Force Medical Service to render support in turn to its flight surgeons within our professional organization.

#### THE COMPLETE EXAMINATION

A thorough, psychologically-oriented examination of the dispensary patient is one of the most potent tools in the armamentarium of the general medical officer. The initial interview and examination, if carried out with the following suggestions can save many hours later on. The tactics one employs really go into play before the doctor even sees the patient. For example, a smoothly operating appointment system does wonders in making the lowliest airman realize that he is receiving individualized care. Appointment systems have been put into operation at many Air Force medical facilities and have been enthusiastically received by doctors as well as patients. The patient arrives at the appointed time. He knows the name of the doctor he will see, and is received in a quiet office where his privacy is insured. There is no procession of corpsmen or nurses in and out of the office during the visit, the telephone is not permitted to interrupt, and the patient is able to settle down and tell about what's bothering him. The doctor enhances this relaxed atmosphere by his willingness to let the patient talk, and other non-verbal indications that this is a special time and place reserved for him as an individual.

When the doctor is satisfied with the interview portion of the examination, he proceeds to the actual manipulative study of the patient's anatomy. This is done in every case, even when the problem is clearly a psychological one. Later, when time and

other studies have established a psychogenic etiology in a manner which is meaningful to the patient, physical examinations should be minimized, but never in the beginning. This careful attention to the patient's ailing parts has deep emotional significance and cannot be overestimated. When the examination is negative, the doctor should say so decisively, but not in a manner which makes the patient feel himself to be caught in a deception. If the patient feels surprised and defensive, the doctor should not block him at this point, but should encourage his questions and give adequate explanations. With carefully chosen words he can proceed to outline his findings and course of treatment.

One way in which the doctor can prepare his patient for acceptance of an emotional explanation for his complaint is to indicate early in their relationship that he is interested in the patient in a very comprehensive way. There are many routine sick call problems where this will not be necessary, such as upper respiratory infections, diarrheas and minor surgical conditions. But the physician will soon develop a keen nose for other problems which have a clear psychological stamp. Some will be clear-cut, as for example those psychoneuroses where the symptoms are presented on a psychological level, e.g., anxiety reactions, dissociative reactions, etc. Somatic problems having to do with the gastro-intestinal tract, the musculo-skeletal system, the skin, the genito-urinary tract, etc., will come to be regarded as often only a surface manifestation of deeper maladjustments. The doctor should bear in mind that patients who want his help will unconsciously try to please him. One of the better ways, it would seem, in which the patients can gain the doctor's favor is to have something physically wrong. Hence, they will talk about their aches and pains because they think that's what the doctor wants to hear. Conversely, patients who seek out or are referred to a psychiatrist will talk about their nervous complaints because this seems more appropriate. This, again, is one of the subtle manifestations of the patient-physician relationship. The doctor can overcome this successfully by employing a non-directive interviewing technique so that real problems do not become blocked and inaccessible. If the doctor conveys his comprehensive interest in the patient's problems early, the patient will be much better prepared to accept a psychological interpretation of his illness later on. It is easier because they have already discussed personal and environmental problems if only briefly, and the doctor has indicated that these must always be looked upon as important. These topics can then be re-introduced without making the patient feel that he has been "found out" after a prolonged sleuthing through the laboratories of organic medicine.

It is obvious from this discussion that all of this takes time. It should be remembered, however, that for every problem which will require this, there will be several where a brief routine management is all that is necessary. If care is paid to the appearance and smooth performance of the dispensary and its personnel, these problems will remain routine, and their disposition will, in fact, be

facilitated. For the problems which do require time, the doctor should arrange his schedule so that such patients return for further study at slack hours during the day. The very fact that the patient receives the doctor's time is medicine in itself, and is one way in which the patient with emotional problems is supported without the necessity for medications, elaborate laboratory studies and other ways in which the doctor may find himself attempting to short-cut the problem. Management of this sort discourages "repeaters" rather than fosters them. Their problems are handled adequately from the beginning, and doubts, fears and indecisions are not permitted to arise. The dispensary physician will find that he is able to function readily in this atmosphere without frequent reference to the psychiatrist and other consultants. As with laboratory examinations and procedures, the doctor will come to find that hurried referrals are often the result of his own anxiety and inability to spend necessary time with the patient.

As the old medical adage goes, "It is necessary to give something." The doctor has already given of his time and genuine interest. The medicine which he prescribes is another vital link in the chain of good dispensary care. It succeeds in part because of its specific pharmacologic action, and in part because of the personality of the prescribing physician who appreciates the magical attraction of physical measures, who employs them shrewdly and with good timing and explanation. For tense, anxious and maladjusted patients, sedation can be of great value. An airman who can get a few nights of solid sleep by taking a seconal or amytal capsule before bedtime will be in a much better position to work out his problems the following day.

In recent years, clinical psychiatry has attained a much wider therapeutic range as a result of the development of new 'phrenogenic' (ataraxics, tranquilizers) drugs. These agents have been found to exert an effect upon the activity and mood of the patient but, unlike the sedative drugs, have a much less prominent effect upon consciousness. Some of the medications in this group, e.g., chlorpromazine, promazine and reserpine, have an effect upon consciousness and upon blood pressure which clearly rules out their use for members of aircrew when continuing on flying status. From data accumulated thus far on these particular drugs, their use seems most beneficial in the case of disturbed, usually hospitalized patients.

The meprobamate ('Miltown,' 'Equanil') drugs have a much more subtle ability to produce tranquility and relaxation of skeletal muscle. The use of meprobamates for tense, anxious patients may show striking success. The relaxant qualities may also be very helpful for muscle strain, tension headache or backache. Meprobamates may fill a very worthwhile role during the let-down rest period following a long mission, if carefully supervised by the flight surgeon. In contrast to the prolonged build-up to a therapeutic level which characterizes chlorpromazine, promazine and reserpine, the meprobamates begin acting on oral administration

within one hour and the effects persist from four to six hours. Because of the newness of these compounds, the flight surgeon is cautioned not to administer them to men while flying. Further study of their effects upon psychomotor performance is necessary, and it is known that some individuals show an appreciable sedative reaction to meprobamates.

New drugs have been added to the flight surgeon's armamentarium of stimulants: Pipradrol ('Meratran') and 'Pitalin' have been found to enhance mood, quicken reactions, and to counteract fatigue and depressed moods. Pipradrol resembles amphetamine compounds but acts more gradually and persists over a longer period of time, usually four to six hours. Effects upon the cardiovascular system and the appetite appear to be insignificant. 'Pitalin' seems to operate in a somewhat similar fashion, but requires further study. Both of these drugs, because of their newness, require much more clinical observation, and the flight surgeon should be very conservative in his approach to their use.

#### MINOR PSYCHIATRY

Since the flight surgeon will deal constantly with emotional problems, it is important for him to have at his disposal certain techniques which are on a safe psychotherapeutic level. Minor psychiatry, then, is a daily part of his activities in much the same manner as minor surgery. Lacking extensive experience in psychiatric training, the flight surgeon will find that he can make up for this to an appreciable extent by maintaining a good therapeutic attitude. This means that he meets his patients with respect and acceptance, that he withholds judgment until he has sufficient facts to work with, and that he cultivates a capacity to empathize with his patients and thereby better understand their problems.

The flight surgeon will spend some of his time in actual interview psychotherapy. The situation in which he finds himself will dictate to some extent the indications and contra-indications for this type of psychotherapy. Interview therapy will be very helpful at a pilot training base where the transient anxieties of the trainees often respond well. On the other hand the flight surgeon will find that interview psychotherapy in a combat area may often be contra-indicated since it may rekindle problems of the past at a time when a flyer must concentrate on the tasks at hand. The techniques which the flight surgeon will utilize best are described as suppressive, supportive and relationship psychotherapies. The suppressive type of psychotherapy is that which seeks to cover up current and past problems by dealing with them only obliquely and through the environment. Such therapy is best suited for a combat zone where the secondary gain of illness and medical attention must be kept to a minimum. Supportive psychotherapy permits the patient

greater freedom of expression of his fears and problems, and the therapist fills a more giving, warm role with his patient. Relationship psychotherapy is treatment on a longer term basis in which the patient learns from observation of the therapist's attitudes and responses that there are other, healthier ways of reacting to problems besides those the patient has been utilizing. The patient learns through what has been described as a series of corrective emotional experiences with his therapist. In none of these levels of psychotherapeutic activity is there any deep probing of the personality. The patient is permitted to set his pace. Direct interpretation of his behavior, his thoughts and dreams is avoided. The ingredients which render all of these levels effective are catharsis, reassurance, suggestion and persuasion.

The flight surgeon's ultimate goals in interview psychotherapy are, first of all, loss or alleviation of symptoms, and secondly, improvement in personal and social adjustment. These goals may or may not be reached over a short or long period of time depending upon many complex factors. During continuing therapy, however, the flight surgeon can maintain progress by focussing on current symptoms or problems. When emotionally-charged situations arise, the therapist examines these with the patient to seek patterns of reaction. These patterns, as they emerge, can be scrutinized for their effect on current adjustment, and eventually their meaning and function becomes understandable to the patient. During the course of this the therapist is most effective if he lets the patient discover these patterns for himself, while the therapist remains in the background except for focussing attention upon the emotionally-charged events.

#### THE IMPORTANCE OF DOING LITTLE

All through the doctor's medical training he is constantly bombarded with advice and directions to "do this" and "do that" for this, that, or another medical problem. A tremendous premium is placed upon one's instant ability to plunge into the diagnostic morass and emerge triumphant a moment later with something "to be done." Therefore, it is quite disconcerting to the physician to deal with the psychiatric patient where the more inactive and procrastinating he is (or seems to be) the better his patient gets along. He is uncomfortable in the extreme when neither he nor his patient has anything to say during 30 or 60 seconds of golden silence during their interview, or when the patient puts him "on the spot" by asking, for example, about the medication he is going to receive. It is helpful to the doctor to remember that the difficult personality problem which presents itself at his office has been many years in the making, and that corrective measures must "make haste slowly." Further, the doctor had nothing to do with the creation of this problem case, and should avoid being made to feel responsible by the patient. He must be warm and accepting, yet detached and inquisitive.

In summary, the flight surgeon stands in the front line of medical care. To his charges he represents the USAF Medical Service. The accomplished flight surgeon embarks upon the treatment of his patients with a unique combination of assets: he encounters emotional disorders in their nascent state when the greatest good can be accomplished, and he appreciates the flyer's environment. These assets to communication are facilitated by the flight surgeon's understanding of the management of complex patient-physician relationships. By fulfilling his role as "team physician," by understanding, patience and thoroughness, the flight surgeon renders incomparable service.

## CHAPTER XV

### NEUROPSYCHIATRIC CONSULTATIONS

Dynamics of the Referral Process. It is important to consider some of the dynamic interpersonal relationships existing and unfolding between the patient, the referring physician and the psychiatrist within the framework of the psychiatric referral. The unconscious attitudes of the individuals involved are seldom exposed to direct view; yet their presence is of momentous significance in the successful rendition of consultant services.

Meaningful communication between two persons is a complicated procedure. It involves the unconscious attitudes and motivations of those concerned, and reflects the distorted patterns of interpersonal relationships which all of us tend to bring to each new interpersonal setting. Communication is not only verbal, but much is conveyed in a non-verbal manner as well. When one of the persons concerned is suffering from an emotional problem, the process is complicated still further. The psychiatric referral focuses on communication by the referring physician to the psychiatrist; communication among patient, referring physician and psychiatrist; and, finally, return communication on the part of the psychiatrist.

Attitude of the Referring Physician. The referring physician is confronted with the preparation of his patient for psychiatric study, and realizes that every patient is threatened to a greater or lesser degree by the prospect of seeing a psychiatrist. The doctor who refers a patient for psychiatric study is often anxious about the problems the patient has presented and should, therefore, be wary of his own tendencies to respond emotionally to the disturbed patient. The problem is not made any simpler by the fact that patients are keenly alert to signs of anxiety on the part of the doctor. The anxious doctor may tend to utilize a psychiatric referral as a means of getting rid of a patient whose problems he unconsciously feels he can no longer handle. At other times the referral may symbolize a hostile gesture on the part of the doctor toward a patient who has not responded as he should, i.e., by getting well on an accepted treatment regimen.

Attitude of the Patient. The public holds many misconceptions about mental illness. For example, it is commonly thought that minor illness will inevitably turn to psychosis. Also, the public tends to belittle any disturbance short of psychosis, and feels that unless the person collapses he is not mentally ill. Psychoneuroses are most misunderstood with a tendency to make a moral problem out of them. Patients may give a variety of objections, rationalizations and denials in order to avoid seeing a psychiatrist. The extent to which the doctor reacts to these surface disturbances is critical to subsequent events. The patient may interpret the referral as a

rejection, conclude that the doctor thinks he is crazy, and may react with anger or fear. At times, the patient may expect too much, as though the psychiatrist were some god-like creature who can perform minor miracles for troubled persons. The physician must be on guard against over-selling the benefits to be expected. He should also avoid the device of calling the psychiatrist by another name, such as a nerve specialist or a neurologist.

All of these difficulties can be minimized if, in good faith, the physician discusses the reasons for referral with the patient. He should explain in understandable terms the interrelationship of emotions and physical symptoms and cite examples. In addition, he should encourage the patient to see that the psychiatrist is best fitted by training and experience to study and evaluate this relationship of emotions to physical symptoms and disease. In rare instances the patient may decline the referral. In such cases it is better not to pressure the patient unless military administrative policies make a consultation mandatory.

Information Provided Consultant. It is obvious that the more information the consultant is given the better will be his opportunity to contribute to the patient's welfare either directly, or by returning useful data to the referring physician. When the patient presents himself for study he represents only one very limited source of information, i.e., himself, whereas the psychiatrist would like to fill in the gaps in the clinical picture through information from members of the patient's family, his friends and associates, and the people who have observed his performance of duties. This is information not easily compiled in cases where the psychiatric consultant is many miles away.

The referring physician must indicate to the psychiatrist, either verbally or in writing, sufficient information for the psychiatrist to determine the purpose of the referral and what the referring physician hopes to obtain. Occasionally the information is of such a confidential nature that it is not wise to reduce it to writing on a consultation form or in the hospital records. Material of this sort may pass through the hands of a number of non-professional auxiliaries of the medical staff. In such instances, a telephone conversation between the referring physician and the psychiatrist before as well as after the interviews with the patient will be very helpful. Any pertinent medical or other records which will help the psychiatrist must always accompany the consultation request.

Psychiatric Referral Facilities. In many instances the flight surgeon may have a psychiatric consultant close at hand. The latter may or may not have ancillary facilities which expand the services which he can render. Some Air Force Hospitals have a psychiatrist on the staff who does out-patient work, but who does not provide in-house care of psychiatric patients. Such a facility can support the flight surgeon in much of his routine work. Large scale

psychiatric facilities known as neuropsychiatric centers are located strategically in several parts of the United States as well as in overseas areas. The Basic Indoctrination Centers have in addition Mental Hygiene Clinics to render close support to inductees in an atmosphere which is deliberately remote from the hospital environment. Where the problems involve a rated individual's fitness for flying, the School of Aviation Medicine, USAF provides, upon request of the Surgeon General, consultative service on difficult, obscure or borderline diagnostic problems affecting flying status and will resolve these problems by authoritative study and opinion.\*

Transportation for Psychiatric Consultation. Most patients can be sent to see the psychiatrist on an out-patient temporary duty status just as they would if the psychiatrist were practicing at their home base. The Air Force Medical Service has established a special fund from which expenses may be drawn to cover this service. It is important for the medical officer who arranges such a consultation to make certain that TDY orders are cut which provide for return to the home base. Failure to do so involves considerable time lost as well as additional expense.

Occasionally the referring physician will be sufficiently concerned about his patient's condition that he will wish to have him transported to the psychiatric facility by air evacuation. He will need to know the proper procedures for preparing his patient. The regulations which provide for air evacuation classify all psychiatric patients as Class I.(388) They are further subcategorized as follows:

Class IA: This is a severely psychotic locked ward patient requiring use of restraint apparatus and the category includes all disturbed psychiatric patients. These patients will require special watch aboard the aircraft and at intermediate stops. The patients will be sedated, restrained, clothed in pajamas and delivered to the aircraft on a litter. Such actively psychotic or potentially disturbed patients include suicidal, homicidal, combative and grossly deluded and hallucinated cases. They are considered as potential seclusion room patients in a hospital and must be placed on closed wards if the aircraft remains overnight (RON) during the flight to the ultimate destination.

Class IB: This includes locked ward psychiatric patients who normally would not require the use of restraint apparatus. Nevertheless, these patients will be placed under special watch aboard the aircraft and at intermediate stops. They will be sedated, dressed in pajamas and delivered to the aircraft on a litter. These are patients who are psychotic to a minor degree or clearly convalescent; they are not disturbed and not likely to become so. They may be

\*Other Aeromedical Consultation Services have been established on a regional basis in the United States and overseas. Such services are governed by the provisions of AFM 160-103.

suitable for open ward care at the originating and destination hospital, but for complete security they must be kept on closed wards during all stops enroute.

Class IC: These are the psychoneurotic cases and others without gross disturbances of behavior. In most instances they have a record of not causing trouble at the originating hospital and can be expected to be cooperative and quiet during the flight. Restraint and sedation are not necessary since these are open ward cases and are usually ambulatory.

Services Rendered by the Psychiatric Facility. The least the referring physician can expect from the psychiatric consultant is an evaluation of the patient's mental condition and recommendations for his disposition. This kind of report may be returned in the case of an airman who falls within the purview of such regulations as AFR 39-16 and AFR 39-17, or who is being studied prior to disciplinary action. At other times the psychiatric consultant will return an opinion as to the ways in which the referring physician should approach further treatment of the problem. For patients requiring close psychiatric care or ultimate disposition, the neuropsychiatric center will offer continued hospitalization until such time as a decision can be made about the patient's fitness for continued military duty. Neuropsychiatric centers employ full treatment programs utilizing insulin coma, electro-convulsive therapy and active total-push regimens. These treatments are not used in every case, however, and patients who show little promise of early benefit are often transferred to the Veteran's Administration for definitive treatment. Because of staffing problems the consultant will undertake out-patient treatment of referred patients only in a minority of cases.

Mental disturbances in military dependents pose vexing problems to all physicians. The military hospitals which offer closed ward psychiatric care to dependents are few in number and usually full to capacity. Therefore it is important for the referring physician to know what facilities are available before sending a psychotic dependent to an Air Force hospital. In such cases a telephone call to the consultant may save much difficulty later on. The flight surgeon should be sensitive also to the medico-legal problems created by the psychotic dependent. He should insure that all services he renders are accepted voluntarily by the dependent, and should familiarize himself with the special commitment procedures of the locality where he is stationed.

The Psychiatric Consultant and Aeromedical Problems. Psychiatrists on duty with the Air Force may not have had training in aviation medicine, and may not be familiar with the special problems involved and their management as outlined in AFM 150-1. It is important therefore for the flight surgeon to know his consultants -- know them personally, if possible, through visits and other professional contacts so that handling of problems involving

flying personnel can be accomplished expeditiously. Within this relationship the flight surgeon can acquaint the consultant with the special problems of flyers, and the consultant, on his part, can advise the flight surgeon on his handling of neuropsychiatric problems in the practice of aviation medicine.

CLINICAL NEUROPSYCHIATRY IN AVIATION MEDICINE\*  
(A Survey of One-hundred Military Problem Cases)

Introduction. What is the role of the neuropsychiatrist in the field of aviation medicine? How much neuropsychiatry should be included in the training of aeromedical specialists? The growth of aviation medicine as an area of medical education and professional career has underscored the need for answers to these questions. Historically, emphasis has been on the initial psychiatric selection of the flyer based on predictive personal interviews and psychological test batteries. This is an area for continuing research and development which is currently well represented in teaching in aviation medicine. This paper proposes to highlight the long-term maintenance of flying personnel and the process of selection-in-depth as seen from a special clinical point of view.

The author has practiced neuropsychiatry exclusively with a flying population for the past 3 years. This presentation of problem cases and pertinent figures may bring to life some of the interesting facets of this field and help to outline the participation of neuropsychiatry in aeromedical teaching and practice. Parenthetically, it depicts this consultant in a preventive frame of reference -- not an easy situation for the neuropsychiatrist -- in which reliable medical standards must be developed, observed and refined.

The Clinical Medicine Division of the School of Aviation Medicine, USAF provides consultant services to the Surgeon General in cases of flying personnel with difficult, obscure or borderline diagnostic problems affecting flying status. This report deals with 100 such problem cases seen successively from March to October of 1954. Not all were referred for neuropsychiatric study, but such evaluation was considered advisable upon or before each subject's arrival at the School.

Method of Study. All patients in this series were referred to the Clinical Medicine Division on temporary duty from their home base. At the time of the examination, all medical records in the case were made available including recent studies by the unit flight surgeon.

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Personal telephone conversations with the latter were arranged at times to render as accurate an evaluation as possible.

The point of departure in the clinical assessment of every case was the psychiatric interview. At times these sessions were tape-recorded and played back later for appreciation of the nuances of the case. If the recording was particularly instructive it was preserved as part of a teaching library for student use. Most cases received detailed clinical psychological batteries of intelligence, performance and projective tests. A neurological examination was accomplished in every case, and electroencephalographic study and other neurological procedures were included as indicated.

The results of study by this Department were then evaluated in terms of the findings of the entire clinical team, including physiologists and aviation medical experts, in addition to the usual medical specialists. Instructive cases were sometimes presented in person to classes in aviation medicine. This was done primarily for teaching, but invariably sharpened our assessment. The questions to be resolved in each case were: (1) Is this man medically fit to fly? i.e., Will flying adversely affect him? (2) Is he a hazard to flying safety? (3) Is there involved in this case a risk to one life, several lives, a costly aircraft? A basic preventive philosophy dominated each appraisal, guided by the detailed specifications of Air Force medical standards.

For the military psychiatrist other troublesome questions inevitably were raised: Is this man capable of developing and exercising the leadership qualities expected of an officer in the US Air Force? Is his present disability a surface manifestation of character defects? Is this primarily a medical problem or is it a social problem, and how does one make such a distinction?

Results. The data here reported were screened from the records of the Department of Psychiatry and Neurology by means of a specially designed punch card filing system.(384) Of the entire group, all but two were from Air Force bases other than our own. Tables 7, 8 and 9 indicate their ages, rank, and years of military service.

These data highlight a well-established present day clinical observation: there are two areas of special stress for the flyer in the current Air Force. The first accounts for approximately half our subjects and is perennial. I refer to the stress of the initial training period during which automatic selection of the fittest takes place. The second area concerns the older flyer who may have flown combat in two wars, who is getting on in years, if not in rank, and who is confronted with high-performance aircraft. Of this entire group, 26 had flown in combat assignments. Of the 76 officers, 57 were married and 48 had children.

The presenting complaints (See Table 10) are of interest because they are rather far removed from the symptoms that the

neuropsychiatric consultant usually encounters. The complaints have been categorized for convenience into three groups: those with rather obvious psychiatric difficulties, those with difficult somatic and psychosomatic ramifications, and finally, those hopeful flyers who come to us feeling quite well but handicapped by a significant medical event in their past.

TABLE 7

AGE DISTRIBUTION

<u>Age</u>	<u>Number of Cases</u>
Under 20 . . . . .	10
21 to 25 . . . . .	43
26 to 30 . . . . .	17
31 to 35 . . . . .	20
36 to 45 . . . . .	10

TABLE 8

RANK DISTRIBUTION

<u>Rank</u>	<u>Number of Cases</u>
Cadet . . . . .	24
Second Lieutenant . . . . .	22
First Lieutenant . . . . .	19
Captain . . . . .	23
Major . . . . .	6
Lieutenant Colonel . . . . .	1
Colonel . . . . .	5

TABLE 9

YEARS OF SERVICE

<u>Years</u>	<u>Number of Cases</u>
Less than 1 year. . . . .	18
1 to 2 years. . . . .	17
2 to 3 years. . . . .	6
3 to 6 years. . . . .	26
7 to 10 years . . . . .	11
More than 10. . . . .	19

TABLE 10

PRESENTING COMPLAINT

<u>Complaint</u>	<u>Number of Cases</u>
<b>I. Psychiatric</b>	
Professed fear of flying . . . . .	3
Manifestations of anxiety . . . . .	8
"Bizarre" manifestations . . . . .	2
<b>II. Somatic</b>	
Disturbance of consciousness:	
In-flight or altitude chamber. . . . .	11
Syncope, recent. . . . .	5
Seizure. . . . .	1
Visual disturbance . . . . .	16
Airsickness. . . . .	9
Headache . . . . .	6
Hearing disturbance. . . . .	5
Other ear, nose, throat. . . . .	3
Hypersusceptibility to Dysbarism . . . . .	2
Miscellaneous	
Upper gastrointestinal complaint . . . . .	2
Dermatitis . . . . .	1
Cellulitis of the leg. . . . .	1
Chest pain . . . . .	1
Hypertension . . . . .	1
Spontaneous pneumothorax . . . . .	1
<b>III. No Expressed Complaint</b>	
History of head injury and prolonged unconsciousness	7
Residuals of neurological disease. . . . .	5
History of psychotic episode . . . . .	2
Defective flight performance . . . . .	2
Unusual conduct. . . . .	2
History of suspension for fear of flying . . . . .	2
History of syncopal attacks in remote past . . . . .	1
<b>TOTAL . . . . .</b>	<b>100</b>

Only 19 of the group were clearly in the psychiatric category, and 6 of these were asymptomatic. The majority of this group showed clinical anxiety or were channeling their distress into one or another of the psychoneuroses, e.g., conversion reaction, phobic reaction. Confession of anxiety and fear entails loss of self-esteem and prestige for the flyer, as well as concrete demonstrations of disapproval on the part of command. Therefore, there is ample reason to find a more socially acceptable channel for expressing anxiety, namely, the soma. The predominant mechanisms with which these patients defended themselves from their anxiety were noted in this study to be somatization, denial, rationalization and suppression.

Accurate study of the 66 cases with somatic complaints in this series, then, put the clinician's skills in interviewing and observing to a severe test. It seems likely that several of the problems of loss of consciousness and special sense impairment could be demonstrated as clear-cut anxiety. These complaints tended to cluster among the ranks of young flying trainees who were predisposed to fall by the wayside by virtue of character and behavior disorders. Perhaps some of them were able to escape through non-punitive medical channels without loss of face by virtue of their obscure symptoms. At any rate, the important point was that they did eliminate themselves, and the operational group was thereby strengthened.

Not infrequently, the flyer with no medical complaint at all attempts to gain entrance to our offices without official arrangements, so great is his desire to resume flying duties. A common example is the following: Air Force medical regulations require an observation period of one year for any trained flyer who has suffered a head injury with unconsciousness lasting longer than 15 minutes. The highly motivated flyer has difficulty accepting this once the recovery period is under way and may put considerable pressure upon his unit flight surgeon to restore him to flying. These patients, often with histories of severe trauma, present an interesting contrast to those refractory head injury cases where compensation is a factor and desire to return to flying is low.

Table 11 presents the diagnoses made and the disposition recommended in the group of 72 cases of primary neuropsychiatric interest. The data do not indicate whether the suspension from flying was permanent but, in general, subjects suspended for psychiatric reasons were grounded indefinitely, while many of the neurological problems required a period of observation of a year or more. Medical disqualification from flying duties does not, of course, render an individual unfit for other types of military assignment, but the loss of a trained flyer is serious in terms of training time and expense.

In one case of borderline syncope a final decision was deferred to the Surgeon General's Office for interpretation of medical policy. Certain cases, e.g., psychoses, unexplained loss of consciousness and head injury with prolonged unconsciousness, were uniformly disqualified as required by regulation. In the group of character and behavior disorders, and the psychoneuroses, however, the consultant's judgment is guided more by individual considerations and hinges strongly upon the patient's emotional stamina and motivation to continue flying. As indicated in Table 12 the presence of psycho-neurotic symptoms or of a character and behavior disorder need not bar the subject from flying. The presence of such findings in a trainee is for the most part discouraging. The trained flyer, however, can be salvaged by alert, early treatment, and often his flying duties need not be interrupted at all. Such therapeutic and preventive measures depend much more upon the unit flight surgeon than the consultant, however, and are beyond the scope of this presentation.

TABLE 11

DIAGNOSIS AND DISPOSITION IN CASES  
OF PRIMARY NEUROPSYCHIATRIC INTEREST

<u>Diagnosis</u>	<u>Medical Disqual.</u>	<u>Medical Qualif.</u>	<u>Adminis. Handling</u>
Psychosis, or history of . . . . .	3	-	-
Psychoneurosis . . . . .	1	6	-
Immaturity reaction . . . . .	6	4	2
Pathological personality . . . . .	6	1	2
Psychoneurosis peculiar to flying. . . . . ("Fear of Flying")	-	-	6
Unexplained loss of consciousness. . . . .	10	-	-
Explained loss of consciousness. . . . .	-	2	-
Craniocerebral trauma with prolonged unconsciousness. . . . .	6	-	-
Residuals of poliomyelitis . . . . .	2	-	-
Encephalitis . . . . .	1	1	-
Skull fracture . . . . .	1	-	-
Encephalopathy due to aeroembolism . . . . .	1	-	-
Migraine . . . . .	-	2	-
Tension headache . . . . .	-	1	-
Neuropathy, traumatic, ulnar nerve . . . . .	-	1	-
"True" motion sickness . . . . .	4	-	-
Observation, no disease. . . . .	-	2	-
<b>TOTALS . . . . .</b>	<b>41</b>	<b>20</b>	<b>10</b>

TABLE 12

DIAGNOSIS AND DISPOSITION IN CASES  
WITH SECONDARY NEUROPSYCHIATRIC PROBLEMS

<u>Diagnosis</u>	<u>Medical Disqual.</u>	<u>Medical Qualif.</u>
Visual defect		
Excessive heterophoria . . . . .	3	-
Heterotropia . . . . .	1	-
Refractive error . . . . .	2	1
Failure of red lens test . . . . .	2	-
Failure of depth perception tests. . . . .	2	-
Defective convergence. . . . .	1	-
Otosclerosis . . . . .	1	-
Deafness, partial. . . . .	3	2
Aerotitis media. . . . .	1	-
Lichen planus. . . . .	1	-
Ulcer, duodenum, active. . . . .	2	-
Rheumatic fever, active. . . . .	1	-
Hypersusceptibility to dysbarism . . . . .	2	-
Cellulitis with lymphangitis . . . . .	1	-
Pneumothorax, spontaneous. . . . .	1	-
Hypertensive cardiovascular disease, benign. . . . .	-	1
<b>TOTALS . . . . .</b>	<b>24</b>	<b>4</b>

There were six subjects in the series who were regarded as examples of "Fear of Flying." This medico-administrative category is an outgrowth of the sporadic refusal of trained officers to continue their flying assignments during times of stress. Briefly, it provides for administrative handling of these subjects who exhibit their psychiatric symptomatology only in the flying situation. Two patients were recommended for return to flying after an episode of unconsciousness was felt to be adequately explained. One had suffered loss of consciousness at high altitude because of an improperly fitted oxygen mask; the other had suffered anaphylaxis following injection of a procaine-epinephrine anaesthetic during dental treatment. The migraine patients in this series were able to remain flying because they did not experience visual impairment and their headaches were not frequent or severe. "True" motion sickness is a special problem which, like the "Fear of Flying" syndrome, carries the consultant over into administrative fields. A case was regarded as having "true" motion sickness if there was a definite past history and if the difficulty had been present consistently during flying training. Motion sickness coming on later in the career of a trained flyer strongly suggested psychiatric difficulties with loss of motivation to fly.

Table 12 presents the diagnoses made, and the disposition recommended in the group of 28 cases in which neuropsychiatric considerations were of secondary importance. In many of these there were psychiatric problems of distinct importance to the effective treatment of the patient, but were not by themselves of a magnitude to warrant disqualification from flying duties.

The following are cases which illustrate some of the typical and the unusual clinical problems which the neuropsychiatric consultant in aviation medicine encounters.

#### Case I

Z.M. is a 20-year-old cadet with 23 hours of primary flying training. He experienced an episode of unconsciousness in solo flight which he described in the following manner: He had been flying at 10,000 feet doing power-on and power-off stalls. During the pull-up part of this maneuver he had been experiencing the usual g-force effect of 'Graying of vision' with associated loss of peripheral visual fields. Although it was not on his schedule, he decided to practice inverted flight, a maneuver he had done before with his instructor. When he began to roll back from an inverted position he abruptly lost consciousness. He recovered heading straight down at a speed of 300 mph, was momentarily confused, and thought for an instant that the control stick was a dangerous snake he was fighting. His left arm seemed to be jerking. He was able to level off the aircraft and returned to the Base where he circled for a time to collect his wits. After landing he had a headache for a couple of hours and was tired the rest of the day. He debated whether to tell his instructor about the episode but was

forced to do so when his overstressed aircraft was scheduled to go up again with another student. The instructor, in turn, sent the patient to see his flight surgeon. It was thought at the time that his unconsciousness might have been due to sudden g-force sustained when the aircraft fell off into a "split-3" maneuver.

The flight surgeon elicited a history of fainting four years previously when the patient got up suddenly after being asleep in a chair. He had been briefly confused for time and place after this "faint." After the current episode, physical examination and repeated blood pressure readings were not remarkable.

The neuropsychiatric consultant observed the patient to be a tall, slender young cadet who was uncomfortable in interviews and cautious in relating the details of his recent experience. The past history revealed that he was the youngest of four siblings who ranged from 12 to 18 years older than he. He expressed a great need to excel and disliked the implication of being the baby of the family. His brothers had done well in track and field events in high school and the patient tried to follow in their footsteps. In a race for freshmen he set a local record in the 830-yard run, but caught colds at the start of the next two seasons and wasn't able to compete. The last season his coach persuaded him to run as anchor man in the 440-yard relay. He won for his team but immediately became sick at his stomach and quit. Regarding aviation, the patient had read and thought of little else for several years. He worked around the local airport but did more repairing of aircraft than actually flying in them. He never took flying lessons or soloed but had ambitions of being a fighter pilot. In contrast, his high school studies favored history and art.

Clinical psychological tests revealed his intelligence on the Wechsler-Bellevue scale to be 123. Projective tests underscored his unrealistic ambitions and desire to manipulate others to satisfy his strong dependency needs. His responses contained excessive rationalization and affective lability with signs of free-floating anxiety. No organic signs were elicited, and the picture was felt to be compatible with a conversion mechanism. Examination by the consultant in Internal Medicine, including a complete blood count, fasting blood sugar, chest x-rays and EKG was within normal limits. Nothing remarkable was noted in the neurological examination. An EEG tracing indicated dysrhythmic tendencies especially as evidenced by spike and wave 3 per second bursts with low doses of retrazol.

In summary, the diagnostic conclusion was that this was a passive, dependent individual who had suffered an episode of unconsciousness, possibly as a manifestation of petit mal epilepsy. He was recommended for medical disqualification from the flying training program.

Comment. This case suggests a complex interaction of cerebral dysrhythmia and anxiety. The picture is obscured by the lack of any witness to the event. Clearly evident, however, were the strong

over-compensating neurotic drives which led the patient into aviation, but would have handicapped him severely as a military aviator.

### Case II

W.S. is a 32-year-old instructor in single-engine aircraft and a former fighter pilot with 1700 hours of flying experience. He and a fellow pilot were flying a jet aircraft at 38,000 feet when they experienced canopy failure and loss of pressurization. In spite of this, they remained aloft for approximately 15 minutes. The patient developed numbness and weakness of the right side, and his vision decreased until he could perceive only light and dark. He was terrified and thought he was dying. The other pilot made an emergency landing. The patient was observed overnight in a hospital, and seemed to recover rapidly. He did show a fluctuating blood pressure for 12 to 14 hours afterward. From that time on he began to notice fatigue, weakness and throbbing headaches. Over the next few months he flew very little and was afraid to fly by himself. Eventually, his flight surgeon removed him from flying duties. Nine months after the episode he found himself avoiding any physically demanding activity. Two or three times each day he experienced spells in which he felt "cut off touch" with his environment. He would inspire deeply and notice constriction of his visual fields. His heart would pound and he would feel shaky and weak, bordering on collapse. The attacks lasted about five minutes and were followed by extreme weakness, nervousness and headaches. Exercise and emotional tension tended to aggravate these attacks.

When seen by the Clinical Medicine Division he was tense, anxious and in poor physical condition although not undernourished. He was mildly tremulous, showed a startle reaction, and perspired excessively. The blood pressure was repeatedly within normal limits.

An EKG tracing, a cold caloric test and an audiogram were not remarkable. During the electroencephalographic study the patient experienced one of his attacks after hyperventilating. The EEG tracing showed minor asymmetry in wave recurrence and amplitude over the central areas, the right side appearing depressed in the amplitudes of some intermittent wave bursts. The tracing was interpreted as questionably normal.

Ophthalmological study revealed moderately severe damage to the left choroid, appearing as a pale, yellowish lesion below and nasal to the macula with visual field defects of the left eye more extensive than would be expected from a simple projection of the lesion. In addition, there was severe concentric reduction of the color fields of both eyes. The clinical picture indicated damage to the left choroid and the visual pathways, the end result of extensive minor aeroembolism.

Comment. The presenting symptoms in this particular case could easily have been misinterpreted as evidence of fear of flying. The unit flight surgeon thought the picture was possibly one of hysteria. The neuropsychiatric consultant regarded the patient's anxiety and episodes of hyperventilation as a psychological reaction to brain injury.

### Case III

First Lieutenant J.H. is a 25-year-old F-86D instrument instructor. His present illness began late one night when he was driving along a winding country road. An oncoming vehicle caused him to swerve and his car overturned. He was admitted to an Air Force Hospital where he remained unconscious or semicomatose for the next 15 hours, and was found to have a fracture of the left temporal bone coursing downward to the base of the skull. Upon regaining consciousness the patient complained of headache for the first three days, and had a retrograde amnesia for several hours preceding the accident. An EEG tracing during the recovery period revealed cerebral damage with a left temporal focus. During the ensuing two months of hospitalization he made an uneventful recovery.

After return to his duty assignment he visited the flight surgeon frequently requesting return to flying status. The latter found him quite difficult. He could not seem to understand the need for a minimum 12-month period of observation. Five months after the accident he dropped in unannounced at the Neurology Clinic of the Air Force Hospital where he had been a patient and persuaded personnel to perform another EEG study. This time, no abnormality was found.

One month later his beleaguered flight surgeon referred him to the School of Aviation Medicine, concerned that his behavior might represent a post-traumatic personality change.

The patient's past history revealed that his mother died when he was a baby and he never saw his father. With a twin and an older brother, he was raised in a series of orphanages. His sensitivity about the deprivations he experienced became almost an obsession to him in later years. He compensated for this by craving culture and his hobbies were art and classical music. Throughout his evaluation he strove to create a completely favorable impression on his examiners. The patient was a good student, finished high school and two years of engineering at his state university. When the time came for him to enter military service, he furthered a lifelong ambition to fly by joining the Air Force. He progressed well through pilot and combat crew training, then flew 100 combat missions in Korea. He enjoyed this duty immensely, was a flight commander, damaged one enemy aircraft and probably destroyed another, and received an on-the-spot promotion. He was considerate of his men in combat, and upon return to the United States he took pride in being a capable instructor. He preferred the F-86 to all other aircraft and flying

it was his greatest joy. He said that being a pilot in the USAF was one of the few things in his life in which he took pride.

Lieutenant M. had never attained a comfortable adult heterosexual adjustment and he leaned heavily upon the companionship of his fellow flyers. Since his accident, however, he had lost the feeling of belonging. No longer could he meet the gang at the Officers' Mess and discuss the day's flying activities. He felt restless, irritable and "out of things."

Physical examination revealed a husky young man of short stature. There was a vertical  $\frac{1}{2}$ -inch scar on the right supraorbital ridge and an oblique  $2\frac{1}{4}$ -inch scar in the right tempoparietal region. The ophthalmological and neurological examinations were entirely within normal limits. An EEG study was done using rest, sleep, hyperventilation and photic stimulation activating techniques. The tracing was interpreted as within the range of normal variations.

Clinical psychological testing did not elicit signs of impairment of mental processes. The IQ on the Wechsler-Bellevue scale was 125. His response to projective tests showed very strong achievement drives and great defensiveness about anything which might put him in an unfavorable light.

Neuropsychiatric recommendations in this case were that the patient continue to be observed and that he return for reevaluation at the end of one year. Suggestions were given to his flight surgeon to assist him in supporting the patient during this period of stress.

Comment. This patient's tremendous drive to achieve found an ideal outlet in military flying, which for him was therapeutic. It is not surprising that he fought so stubbornly to return to flying duties. Such cases present difficult problems in patient-physician relationships which cannot be resolved until deeper motivations are appreciated and incorporated into the flight surgeon's management of the case.

#### SUMMARY

The neuropsychiatric consultant in the aviation medicine setting encounters patients whose presenting complaints are quite different from his usual practice. A majority of these are difficult psychosomatic problems concerning loss of consciousness or impairment of a special sense.

As teacher and consultant, the neuropsychiatrist functions most effectively in close teamwork with the other clinical specialties. His philosophy must be fundamentally preventive, and his

opinions founded upon principles of flying safety and medical fitness where these have been established.

Effective teaching of neuropsychiatry to future aeromedical experts will emphasize the importance of an understanding of personality dynamics, and will stress the vital necessity of good interviewing technique. Special attention should be given to complex psychosomatic problems involving impairment of consciousness or special senses.

This survey leaves the author with the impression that the future specialist in aviation medicine who is carefully supervised in his formative years will be capable of considerably more independent practice than we now witness. Although he may find himself without elaborate clinical facilities and testing equipment, his intimate acquaintance with the flyers' environment cannot be duplicated in the office of the distant consultant. From his on-the-spot vantage point, with the patient application of techniques of fact-gathering and sorting, he should be able to transform his most troublesome patients into his most instructive ones.

## CHAPTER XVI

### ADMINISTRATIVE PSYCHIATRY THE RATIONALE OF ADMINISTRATIVE MANAGEMENT

One of the most difficult adjustments which the doctor new to military service must make is this: Where do his obligations to the individual end, and his obligations to the group begin? In the patient-physician relationship, which forms the keystone of medical practice, the doctor naturally is primarily oriented toward the patient. But aviation medicine requires teamwork. Everyone has to feel that his fellows are expending the same effort. Airmen who fail their fellows may do so for many reasons. Some reasons are distinctly medical, as for example, the airman or officer who develops a schizophrenic psychosis. Others may fail from other causes which involve moral judgments. Because this latter group can be understood in psychiatric terms, there is frequent misunderstanding of the doctor's role. It behoys the flight surgeon, therefore, to view these diverse clinical problems broadly, considering the individual and his needs, but also, the welfare of the group.

There are many references in Air Force Regulations to the administrative handling of men who fail, but who do not evidence disease. It is well for the flight surgeon to be familiar with these rules since he must constantly inform lay personnel that such persons are not a medical responsibility.

In the case of officers, Air Force Regulation 36-2 states that "No officer has an inherent right to continued service as an officer...An officer will be considered for revocation of commission or removal from the active list when he evidences substandard efficiency, undesirable personal habits or traits of character, or any other weaknesses which cast serious doubt as to his fitness or suitability to continue as a commissioned officer." Examples of cases often encountered in medical practice are persons who have medical complaints which overlie an inability to assume leadership, or long standing substandard performance of duty, apathy, defective attitudes, temperamental unsuitability, mismanagement of personal affairs and intemperate conduct.

For airmen Air Force Regulation 39-15 encourages continued effort and attention to screening and elimination of inapt and unsuitable personnel. The reasons for administrative processing of airmen as set forth by this regulation run the gamut of clinical conditions which the military psychiatrist sees every day. The point to be emphasized is that they may receive medical care and support, but ultimate disposition is not via medical channels. Here again, when the medical officer is satisfied that no incapacitating medical disease exists, he must remind line personnel that responsibility for the individual is their own.

MacLean has eloquently stated the social responsibility of physician and psychiatrist on the basis of his experience in World War II. Because the issues are set forth with such clarity in his article "No Disease," (317) this is quoted here at length:

"(World War II brought to light perplexing ethical problems, particularly) popular misconception of psychiatric principles, distorted sentimental concepts of functional disability and exaggerated statements as to the efficacy of psychotherapy. Psychiatry must explain ... in simple language, the underlying reasons for its failures in the prevention and treatment of the psychoneuroses and related disabilities of war...."

"(In World War II) the word 'cowardice' seldom, if ever, was heard because of the recognized difficulty in distinguishing it from a type of psychoneurosis which is the expression of an illness of the personality rather than of moral guilt. Prior to the evolution of psychiatry...there were simply courageous men and cowards in peace and war....A large number of those who profess knowledge of the mind are convinced that man is a relatively irresponsible organism, the product of instinct and environment; that he is an animal whose behavior is determined by psychologic and biological laws acting within an ever-diminishing framework of choice in decision.... The ethics of our civilization have...been interpreted in freudian and behavioristic terms....(If) we turn our faces away from the possibility of unethical behavior, the decorations of our men for valor in battle...become worthless hypocritical rewards given by a cynical people....At no time (has man been) released by society from the responsibility and discipline of meeting the demands of life. (In the past, men) accepted their relative disabilities as personal problems, which they themselves had to solve....In military existence, however, tens of thousands of these individuals discovered that their symptoms were sufficient to excuse them from the labors, uncertainties and dangers of war....Untold numbers resisted therapy and searched for new nervous symptoms to thwart return to duty. Further, possessed of honorable discharges, they returned to their families with documentary proof that they were victims of disease and war and were not responsible for helping themselves...."

"(There are two kinds of cowardice.) First, a callous, unmixed selfishness; second, a component of psychoneurosis containing fears which an individual could conquer or allay sufficiently to allow him to carry on his duties....On the other hand...there are psychoneurotic disorders the symptoms of which an individual cannot conquer or allay sufficiently to allow him to carry on his duties....(Such individuals are) therefore, not responsible for (their) failures...."

"Yet there remains to be described an intangible reality of conduct for estimating which...psychiatry has neither the

moral nor the legal qualifications, a reality which resides in the ethical conscience of a people...nearly all men have fear and know insecurity, frustration and exhaustion, and most of them have known adult tears. Men who stayed in uniform saw other men leave for home because of symptoms which they themselves concealed and endured, which they recognized in themselves as seeds of weakness and cowardice and which they considered it to be their duty to conquer.... (These men) have an insight which psychiatry, in its introspection, seems to have lost in a jungle of descriptive words and phrases, an insight into the moral fiber of men at war...."

"(There are) two large divisions of functional disability. One of these (is) a disease of the psyche, the pathogenesis of which could be traced to evolution of the personality; the other (is) an ethical defection, loss of military morale. This ethical defect was often indistinguishable from its psychoneurotic counterpart....To possess morale, one must have a goal for thought and action....Morale contains...self-confidence, loyalty, trust and honor. In some of its aspects it is the identification of self with a group and its values vary from civilization, and from time to time in the same people....To date, psychiatry has willingly accepted the full responsibility for this failure because it has identified loss of morale with a disease of the psyche."

AIR FORCE REGULATIONS PERTAINING TO THE MANAGEMENT  
AND DISPOSITION OF PSYCHIATRIC PATIENTS

Discharge for Inaptitude or Unsuitability  
(Air Force regulation 39-15)

This regulation outlines the conditions and procedures and constitutes the authority within the Air Force for the discharge of enlisted personnel for inaptitude or unsuitability. It does not pertain to officers. When it is determined that an airman cannot be developed to the extent that he may be expected to absorb further military training and become a satisfactory airman, he will be discharged.

The discharge of an airman under this regulation can be accomplished only after it has been determined conclusively that no mental or physical defect exists which would warrant separation because of

\*Although the general principles of these regulations change very little with time, minor revisions will be made occasionally. To insure that the versions here described are current, the flight surgeon should consult his commander's regulations file.

physical disability. An airman whose condition warrants separation for disability would be disposed of under the provisions of Air Force Manual 35-4. An airman who has demonstrated inaptitude or unsuitability for military service, but whose psychiatric or physical condition is not such as to warrant separation for disability, will be disposed of under Air Force Regulation 39-16.

Discharge for inaptitude will be effected when it is determined that an airman does not possess the required degree of adaptability for military service. This includes airmen whose inaptness may be due to lack of general fitness, want of readiness or skill, unhandiness or inability to learn.

Discharge for unsuitability will be effected when it has been determined that an airman is unsuitable for further military service because of:

1. Lack of physical stamina because of the likelihood of early recurrence of incapacitating symptoms from an uncontrollable cause as a result of continued military service, but where return to civilian life may be effected without likelihood of recurrence.

2. Character and Behavior Disorders:

- a. Schizoid, paranoid, cyclothymic, inadequate and asocial personalities.
- b. Immaturity reactions: emotional instability, passive-dependent reaction, aggressive reaction.

3. Mental Deficiency.

4. Apathy, defective attitudes and inability to expend effort.

5. Enuresis.

Procedure.

1. Report Required - The recommendation for discharge under this regulation is initiated by the commanding officer who submits a report. This report is submitted when in the opinion of the commanding officer an airman is either inapt or unsuitable as indicated above. He recommends in this report that the airman be required to appear before a board of officers. The commanding officer's report will include name, grade, service number, age and length of term of enlistment, reasons for action recommended, AGCT or similar test score and AFSC, a statement showing the attempts made within the organization to make a satisfactory airman of the person, character and efficiency rating, airman's record of trial by courts-martial, record of other disciplinary action taken against the airman, abstract of the daily sick reports, report of the medical officer including a statement that

there are no disqualifying mental or physical defects sufficient to warrant separation under the provisions of Air Force Manual 35-4, and any other information pertinent to the case.

2. Mental Evaluation - An airman scheduled to appear before the board will appear before the unit medical officer or base surgeon. This medical officer will ascertain whether any mental or physical defect exists which is of sufficient importance to warrant action under the provisions of Air Force Manual 35-4. Ordinarily this report is done by the general medical officer, providing that physical and mental defects of major import are not involved. Under these circumstances the medical officer will submit a report in which the essential points of the mental and physical condition of the airman are described. He will also make a statement as to his mental competency and responsibility. In addition to this a definite statement will be made to the effect that there are no physical or mental conditions sufficient to warrant discharge under provisions of Air Force Manual 35-4. If sufficient history is obtainable, a diagnostic formulation should be made. In addition, the medical officer may make recommendations as to whether or not in his opinion action under this regulation is indicated or whether or not rehabilitation and reassignment should be tried.

When there is any doubt in the general medical officer's mind that psychiatric considerations of major importance are involved, the airman should be referred to the nearest medical installation having a psychiatrist on its staff. However, cases of this type will be referred for consultation on an out-patient basis and will not be transferred as patients except under unusual circumstances. If the distance involved is great, the patient may be placed on temporary duty. In some instances, such as suicidal cases or extremely aggressive individuals, it may be wise to recommend hospitalization.

The board which is usually comprised of not less than three officers, at least one of whom is field grade, can recommend that the airman be:

1. Discharged because of inaptitude.
2. Discharged because of unsuitability.
3. Referred for consideration by a board of officers convened under Air Force Regulation 39-17 for unfitness.
4. Retained in the service.
5. Hospitalized for further medical evaluation.

An airman discharged for inaptitude or unsuitability will be furnished a "General Discharge." Reentry into the Air Force of any airman discharged under provisions of Air Force Regulation 39-16

is not authorized unless the cause of discharge is subsequently removed and reentry is authorized by the Chief of Staff, USAF.

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Peterson has provided valuable advice on the preparation of medical reports for administrative use.(495) The following is an example of a letter the flight surgeon might use to report the medical findings in a subject under consideration for discharge under Air Force Regulation 39-16:

1. Airman Second Class JOHN R. THOMAS, AF 36 721 835, of your command was seen on several occasions in the Flight Surgeon's Office. He first came to us on 10 April 1954, when he complained of interpersonal friction and dissatisfaction with the Service.

2. Since I have discussed this airman's disciplinary, social and work problems, both with him and also with his commanding officer, I will not go into them further here.

3. Upon examining him, I have found that his personality has a definite schizoid character pattern. This pattern is shown by his difficulty in getting along with others, his over-emphasis on 'intellectual' matters, his sensitivity, his aloofness, and his tendency to belittle his work and fellow workers. I believe that he is barely getting along in the military setting now. If he continues in the Service he will probably require disciplinary action or medical care, or both. I doubt that transfer or change of duty would increase his effectiveness or solve his difficulties.

4. The following statements are applicable: (1) There are no mental or physical defects which would warrant action under the provisions of Air Force Manual 35-4. (2) The airman was and is mentally responsible, and capable of differentiating right from wrong and adhering to the right. (3) The pertinent medical diagnosis is: Schizoid Personality; chronic, severe; Line of Duty, No, EPTS.

5. Conclusion: In my opinion, Airman Second Class JOHN R. THOMAS, AF 36 721 835, is unsuited for military duty as defined in Air Force Regulation 39-16. The above information is forwarded to assist you in such administrative action as you may elect.

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Discharge for Unfitness  
(Air Force Regulation 39-17)

The discharge of enlisted personnel under the provisions of this regulation will be accomplished only after conclusive determination has been made that no mental or physical defect exists which would warrant separation under the provisions of Air Force Manual 35-4.

Also, definite determination must be made that the individual cannot be rehabilitated to the extent where he may be expected to become a satisfactory airman. Action will not be taken under this regulation in lieu of disciplinary action.

When an airman has demonstrated that he is totally unfit for further retention in the military for any of the reasons indicated below and his rehabilitation is considered impossible after repeated attempts to accomplish this have failed, his commanding officer will report the facts to the next higher commander to recommend that the airman be required to appear before a board of officers convened under the authority of this regulation. His report will contain identifying data and evidence of habits or traits of character such as:

1. Antisocial or amoral trends, chronic alcoholism, criminalism, sexual perversion, drug addiction, pathological lying or other misconduct.
2. Unclean habits.
3. Repeated commission of offenses.
4. Habitual shirking of duty.
5. Recommendation for discharge by a board of medical examiners not because of physical or mental difficulty, but because he possesses a psychopathic or antisocial personality disorder or defect, or is classified as having "no disease" by the board and his record of service reveals frequent disciplinary actions because of infractions of regulations and commissions of offenses and it is clearly evident the complaints are unfounded and are made with the intent of avoiding service.

The board of officers will recommend that the individual:

1. Discharged because of unsuitability, i.e., under the provisions of Air Force Regulation 39-16.
2. Discharged because of unfitness.
3. Retained in the service.

If the airman is separated under Air Force Regulation 39-27, an undesirable discharge will be given. Reentry into the Air Force for an airman discharged under provisions of this regulation is not warranted unless the cause of discharge is subsequently removed and reentry is authorized by the Chief of Staff, USAF.

Many individuals with character and behavior disorders are hospitalized because they appear to the admitting medical officer to be suffering from a neurosis or psychosis which requires hospitalization.

Many of these individuals present extremely difficult diagnostic problems (emotional lability, suicidal tendencies, transient dissociative reactions resembling psychotic breaks, uncontrollable aggressive behavior, etc.) which can be resolved only after a reasonable period of close observation and study. Some are under charges for an offense and are hospitalized in order that an adequate pre-trial psychiatric examination can be accomplished. However, it is believed that a number of these individuals are hospitalized unnecessarily. If the admitting officer would carefully screen all cases and take the time to obtain a good psychiatric history and mental status examination, it is possible that the admission rate for character and behavior disorders could be substantially reduced.

Administrative delays in discharging these individuals in accordance with Air Force Regulation 39-16 and Air Force Regulation 39-17 unnecessarily elevate the non-effectiveness rate. Better liaison with the base legal officer and the individual's company commander can do much towards correcting this situation. When an individual with a character and behavior disorder is returned to his parent outfit, his company commander should be contacted personally and informed of any recommendations that the medical officer has to offer regarding proper disposition of the individual. If an administrative discharge is recommended, the individual's parent organization should be requested to advise the base hospital commander when action has been completed on the recommendation, or to advise the base hospital commander of any deviations contemplated in the management of the individual within a specified period of time following his discharge from the hospital. If hospitalization should again become necessary, this fact should be brought to the attention of the airman's commanding officer, together with a summary of past hospitalizations and past recommendations for administrative separation from the service. This action should help substantially to reduce the admission rate since many of these individuals are hospitalized several times before proper administrative action is finally taken.

Perhaps much of the difficulty encountered in the speedy elimination in this category of personnel can be traced to the reluctance or the inability of the line officers to use a medical certificate as evidence that the individual cannot be rehabilitated for effective military duty. All too often the medical certificate is written in highly technical, esoteric language or obscures in other ways, often through excessive brevity, those points which must be considered by a board convened under the provisions of Air Force Regulations 39-16 or 39-17. A medical certificate should be a detailed psychiatric evaluation written in language easily understandable by a layman.

Discharge of Homosexuals  
(Air Force Regulation 35-56)

Homosexuality will not be permitted in the Air Force and prompt separation of true, confirmed, or habitual homosexuals is mandatory.

Every member of the military service will consider it his duty to report to his commanding officer any facts concerning overt acts of homosexuality by any other person which may come to his attention. Commanding officers receiving information indicating that a person in the Air Force possesses homosexual tendencies or is engaged in an act of homosexuality will report the facts and circumstances in each case to the local Office of Special Investigations and request investigation by that office.

Classification of Homosexuals.

Class I: Those cases accompanied by assault or in which the other person involved did not willingly consent or where the consent was obtained through force, fraud or actual intimidation or commission of the homosexual act with a minor whether the minor cooperated or not.

Class II: Cases where personnel have willfully and mutually engaged in one or more homosexual acts or where evidence supports proposal or attempt to perform an act of homosexuality and which does not fall into Class I category. No distinction is made in the administrative handling of homosexual persons based upon whether or not the role of the person in any particular act was active or passive.

Class III: Those cases where personnel exhibit homosexual tendencies or habitually and knowingly associate themselves with true, confirmed homosexuals and where there are no specific homosexual acts or offenses.

Disposition of Homosexual Cases:

Disposition varies according to the classification of the individual, ranging from General Court Martial in Class I cases to retention in service where justified in certain Class III cases.

Medical evaluation, usually by a psychiatrist, will be accomplished on such individuals. However, when psychiatric evaluation is not available, a medical report should include the concise history and statement as to the individual's homosexuality or lack of evidence for it. Any impressions or speculations should be stated. It should also be stated in the report whether or not the data gathered by the OSI is available at the time of the interview. If it is not available at the time of interview, it should be stated in the report that the evaluation is based upon the patient's statements and the clinical impression of the medical officer. A report should also have some sort of a diagnostic formulation if possible. A statement should also be made as to the mental competency and responsibility of the individual, and that there is no physical or mental defect to warrant discharge under provisions of Air Force Manual 35-4.

Line-of-Duty and Misconduct Investigations  
(Air Force Regulation 35-67)

Determination of line-of-duty and misconduct status is an administrative action to determine eligibility for gratuity pay in death cases and entitlement to benefits peculiar to injury or disease cases. Such determination is distinct from any judicial or disciplinary process. The proximate cause of an injury, disease or death is a fundamental factor in determining the finding. (Proximate cause means that which, in a natural and continuous sequence, unbroken by any efficient intervening cause produces the injury, disease or death without which it would not have occurred.) Death or ill effect chargeable to an intervening cause (one which comes into active operation in producing the result after the negligent act or omission) will be determined as incurred in line of duty (LOD).

Line-of-duty Status: There is a presumption of line-of-duty, and not misconduct, when the person was in active service whether performing duty or on authorized leave, unless, (1) a result of the person's own, intentional misconduct, (2) while in desertion, (3) AWOL, (4) while not in active service, or inactive training, and was not aggravated by the performance of military duty as determined by the medical officer. Substantial proof is required to establish line-of-duty, and any reasonable doubt will be resolved in favor of the subject.

The following are defined as misconduct:

1. Intentional misconduct, directly attributable to:
  - a. Gross negligence or carelessness.
  - b. Suicide or attempted suicide.
  - c. Wanton disregard for personal safety and the safety of others.
  - d. Wanton overindulgence in alcoholic liquor or drugs.
  - e. Venereal disease if the person neglected to comply with directives, requiring him to report and receive treatment.
  - f. Aggression or unwarranted participation in such affrays.
2. Intentional participation in any act or gesture, the probable least result of which will be an injury or grossly careless behavior, while mentally sound normally should constitute intentional misconduct.

Suicide or Attempted Suicide. Suicide is the unlawful taking of one's own life. Suicide will be adjudged misconduct when a determination has been made that beyond a reasonable doubt the motivating cause of the suicide was misconduct. Attempted suicide which results in injury or ill effect will be adjudged according to the mental condition

of the person at the time of such attempt. Mental unsoundness acquired in line of duty will compel a finding of "in LOD" for the injury or ill effect.

Absent Without Official Leave: To be judged as misconduct, the person must be voluntarily AWOL for at least 24 hours, or be voluntarily absent from a scheduled duty, formation, restriction, or arrest unless such absence is excused as unavoidable. Failure to sign out on authorized leave should not normally place the person in an AWOL status.

In investigation of Line-of-Duty cases, the medical officer will show the primary cause for admission to hospital, followed by additional diagnoses in order of importance. Complete details, causative agent, how incurred, when, where and what the person was doing at the time will be provided. An opinion will be given as to whether and to what extent the person was under influence of intoxicants or drugs at the time of injury, and will specify the method of determination. A statement of the probable extent of disability, for example, none, temporary or permanent will also be included. Any condition which existed prior to service will be so recorded.

When sobriety is questioned, an attempt will be made to determine the extent of the influence of intoxicants or drugs by obtaining the statements of witnesses concerning the rationality of speech, coordination of muscular effort, general behavior and appearance as compared to similar factors when the person concerned was known not to be under these influences. In appropriate cases, blood alcohol tests and other studies will be carried out.

Discharge for Physical Reasons  
(Air Force Manual 35-4)

This manual applies equally to officers and airmen and pertains to medical and surgical as well as psychiatric conditions. The psychiatric disorders which are eligible for discharge under the provisions of this manual are:

1. Functional psychotic disorders such as schizophrenic reactions, paranoid reactions and affective reactions.
2. Psychotic reactions with organic brain disease.
3. Psychoneurotic disorders including anxiety reactions, conversion reactions, phobic reactions and somatization reactions.

Most psychoneurotic disorders will not be separated under this manual for several reasons. First, psychoneurotic disorders must be severe enough to fall below minimum standards for induction and reenlistment. If such is not the case, the airman or officer must

be returned to duty. Secondly, most psychoneurotic symptomatology in military service is situational in nature, i.e. precipitated by stress imposed on a poorly integrated and organized personality. Consequently, the basic difficulty is usually a character and behavior disorder, rather than a psychoneurosis. If this is so, then separation under Air Force Regulation 39-16 or 39-17 is indicated.

The mechanics of disability evaluation are complicated and include appearance first before a Medical Board,\* later before a Physical Evaluation Board. A Physical Review Board and in some cases a Physical Disability Appeal Board are also involved. Medical boards are located at all USAF hospitals. Physical Evaluation Boards are located at the larger medical centers. Physical Review Boards and Physical Disability Appeal Boards are located in Washington, D.C.

Discharge for Physical Defect which Existed Prior to Service  
(Chapter 9). This chapter provides for the expeditious discharge of airmen found to be unfit for retention in the service by reason of physical disability which existed prior to entry upon service and whose condition has not been aggravated by service.

When in the opinion of the attending surgeon a person in the category noted above, who has completed less than an aggregate of eight years active service, is physically disqualified for retention in the service by reason of a physical condition which existed at the time of his entrance on the current tour of active duty, such a person may elect to submit an application for immediate discharge under this chapter of Air Force Manual 35-4.

Application for discharge will be submitted through the airman's commanding officer to the hospital commander. Upon receipt of application, action will be taken to convene a board composed of at least three medical officers who will conduct a personal hearing, evaluate all evidence in the case and make recommendations. Board proceedings will be approved or disapproved by the hospital commander. Discharge will be effected by the local commander having such authority and will be "General" or "Honorable."

Discharge for Hardship  
(Air Force Regulation 39-13)

Although this regulation is predominantly administrative, it concerns medical officers in the total handling of their patients. Occasionally a patient may develop physical symptoms under the stress of

\*Air Force Pamphlet 150-7-2, "Boards of Medical Officers," describes the conduct of Medical Boards, and comments on the numerous regulations under which a Medical Board may be convened. There is a section included on particular problems in the disposition of psychiatric cases. The Medical Board proceedings are defined as a professional consultation and not a judicial procedure.

some reality problem at home. This may ultimately be capable of solution only by discharge of the patient. If it is a bona fide hardship, the patient may be discharged under provisions of this regulation.

Hardship may exist by reason of death or disability of a member of the family occurring after enlistment. Consequently the members of the family may become principally dependent upon the airman for support. However, hardship may also be present when, under circumstances not involving death or disability of a member of the family, the separation from the service will materially effect the family support. The requirement must be that undue and genuine hardship exists. The hardship should not be of a temporary nature, and conditions must have arisen or have been aggravated to an excessive degree since entry into the service. Also the airman must have made every reasonable effort to alleviate hardship by means of family allowances and voluntary contributions.

The airman must personally submit a written application for discharge for hardship to his commanding officer. Also, he must provide affidavits or statements by or on behalf of the airman's dependents and by at least two disinterested agencies or individuals substantiating the hardship claim. If hardship is a result of death of a member of the airman's family, occurring after his entrance into the service, a certificate or other valid proof of death must be furnished. If hardship is the result of disability of a member of the airman's family, occurring after his entrance into the service, a physician's certificate will be furnished showing the specific disability incurred and the nature thereof. Also, the commanding officer will initiate Red Cross investigation by the local chapter to substantiate the existence of the hardship condition.

Fraudulent Enlistment  
(Air Force Regulation 39-21)

This regulation establishes the policies which will govern the disposition of cases involving individuals who fraudulently enlist in the Air Force. Among the frauds noted in this regulation are concealment of a criminal record, concealment of prior service and concealment of alienage. In addition, an individual may be discharged for fraudulent enlistment if he willfully concealed any fact, except minority, that existed prior to enlistment.

It is possible to commit a fraud as defined in this regulation by willfully concealing a medical disability which would have disqualified the individual for military service. However, a person who concealed a mental disability at the time of enlistment will not be discharged under this regulation if a determination is made that due to mental defect, disease or derangement, he did not possess sufficient mental capacity at that time to distinguish between right

and wrong. Where such a determination is made, the individual will be handled medically under Air Force Manual 35-4.

The form of discharge under this regulation may be undesirable or general.

Discharge of Enlisted Absentees and Deserters  
(Air Force Regulation 39-23)

This regulation outlines the conditions and procedures for the discharge of absentees and deserters who are not tried by court-martial.

When an airman incurs a physical disability which renders him unfit to perform his duties, and when such disability is incurred during a period of unauthorized absence, such airman will be separated from service without any of the benefits relating to retirement, severance pay, etc.

Upon occasion, airmen are returned to military control after a period of AWOL or desertion which is within the statute of limitations as far as trial by court-martial is concerned. Under these circumstances, if a subject is found to possess a physical defect or psychiatric condition that incapacitates him permanently or renders him inadaptable for further military service, he may be discharged without trial.

An absentee or deserter returning to military control who is determined to be psychotic will be discharged by reason of "AWOL (or Desertion) and Physical Unfitness" only when the mental condition occurred subsequent to the date of absence. If in the opinion of the medical authorities the airman was psychotic at the time he left military control, he should be disposed of under Air Force Manual 35-4.

COMMISSIONED OFFICERS

Revocation of Commissions, Removal from the Active List  
and  
Demotion of Officers  
(Air Force Regulation 36-2)

This regulation prescribes the criteria and procedures for effecting the revocation of commissions, removal from the active list, or demotion of officers and warrant officers serving on active duty with the Air Force.

No officer has an inherent right to continued service as an officer. At all times his conduct and performance of duty should be exemplary. His service as an officer is a privilege which may be

terminated for any reason which is considered to be in the best interests of the Air Force. The provisions of this regulation are administrative in nature and will not be used for punitive purposes.

The following deficiencies are a basis for action under this regulation:

1. Demonstrated inability to exercise leadership or command.
2. Failure to acquire and/or maintain acceptable standards of professional or technical proficiency.
3. Manner of performance of duty which is qualitatively less than that adjudged normal for officers of comparable rank, experience and length of service.
4. Failure at any school when attendance is at Government expense, providing that such failure reasonably can be traced to factors over which the individual did have control.
5. Apathy, defective attitudes, or temperamental unsuitability.
6. Evidence that the officer concerned is an unwarranted security risk. The possible compromise or unauthorized divulging of classified information as a result of poor judgment, lack of discretion, carelessness, or intemperate use of alcoholic beverages or narcotics properly may be cause for action.
7. Material omission from or misrepresentation of facts in official statements or documents.
8. Financial irresponsibility or other mismanagement of personal affairs.
9. Intemperance or other misconduct of a character incompatible with exemplary standards of personal conduct, character and integrity.

The mechanics of this regulation are complicated, and are monitored by the Personnel Officer. The medical officer should, however, be familiar with the general provisions, so that he will make the distinction between failure as a result of medical disease, as opposed to failure as an outgrowth of personality defects.

Officers - Discharge for Convenience of Government  
(Air Force Regulation 36-23)

This regulation sets forth procedures for accomplishing the release from active duty of commissioned and warrant officers of the Reserve who have served honorably, and whose release is indicated because of advanced age, medical reasons not involving physical unfitness, or for convenience of the government.

Release for the convenience of the Government for medical reasons is the portion of special interest. Such action will be taken when a medical board, whose findings and recommendations have been approved by the hospital commander, has considered the case of an officer patient and has found the officer physically qualified for return to active duty in a general service status, but has recommended against such disposition because of:

1. A presumption that continued active service would be harmful to the officer and would not be in the best interests of the service.

2. Indications that the officer is unlikely to render effective service upon return to duty by reason of a possible early recurrence or aggravation of incapacitating symptoms as a result of conditions peculiar to the military service.

Officers - Disposition of Certain Rated Officers  
Evidencing Fear of Flying  
(Air Force Regulation 36-70)

This regulation establishes the authority and prescribes the criteria and procedures for the separation or demotion of commissioned officers in the active military service of the USAF who hold currently effective aeronautical ratings and are physically and professionally qualified to perform flying duty, but who profess in writing or otherwise exhibit an incapacitating fear of flying.

Training leading to an aeronautical rating has always been and must remain voluntary. Once an officer is rated, crew assignments, including refresher training as needed, become military duties. Officers must be expected to assume this duty willingly for a considerable period of time. Efforts on the part of an individual, declared professionally and physically qualified, to avoid hazardous duty and in particular training for and actual combat, indicate he has failed to live up to the standards of an Air Force officer and he should be separated from the service. The length and character of officers' rated service will be considered when determining whether separation is appropriate. Officers with less than 10 years of rated service should be separated except in those rare instances where there are compelling reasons to the contrary. Officers with more than 10 years of rated service may be retained or separated, based upon circumstances of the individual's case and his usefulness in a ground assignment. Those officers who are retained will be reduced to their permanent grade if serving in a higher temporary grade. When an officer who has professed in writing or otherwise exhibited an incapacitating fear of flying is suspended from flying under the provisions of Air Force Regulation 36-57 (Flying Status of Rated Personnel), appropriate action will be taken in accordance with this Regulation.

When an officer is suspended from flying under the provisions of paragraph 9b, Air Force Regulation 36-57 (Incapacitating Fear of Flying), and it has been determined that he is physically qualified for

flying, a recommendation for disposition of the case, together with all supporting evidence, will be forwarded direct to the wing commander. That commander will endorse the report with all information pertinent to the case direct to the major commander concerned. If a psychoneurosis directly related to a fear of flying exists, the officer will be treated and upon completion of this treatment the officer will be physically qualified for flying.

Other sections of this Regulation deal with action by the major commander, action of the Board of Inquiry, the rights of the respondent, etc. Officers separated under this Regulation normally will be honorably discharged. In instances where moral or professional dereliction within the control of the individual exists, the character of the discharge given may be "under honorable conditions" or under other than honorable conditions depending upon the degree of seriousness. Such determination will be made by the Secretary of the Air Force.

#### FORENSIC PSYCHIATRY

Problems of legal medicine will at times involve the flight surgeon, and he should be aware of the questions that may arise, the proper methods of dealing with them, and of sources of guidance to which he may refer as the occasion requires. Most commonly, legal problems will center about such matters as determination of criminal responsibility, and the hospitalization of mentally ill dependents.

#### Determination of Mental Responsibility

Air Force Manual 160-42, "Psychiatry and Military Law," is a highly instructive pamphlet dealing with the determination of mental responsibility for criminal acts. Important points from that manual are cited here for the guidance of the flight surgeon.

The flight surgeon's need to understand problems of mental accountability is well illustrated by the fact that any physician may testify as an expert psychiatric witness before a court-martial. The extent of the physician's specialized training or experience in psychiatry affects the weight of his testimony rather than his competency as an expert witness. The primary function of the expert witness is:

1. To enlighten the court on the pathology and symptoms of the particular mental disease or disorder from which the accused may be suffering at the time of the trial or from which he may have been suffering at the time of the alleged crime, and,
2. To explain the effects of such symptoms or such mental disorder on the accused's mental ability:

- a. To realize that the act charged is wrong, or
- b. To control his conduct and adhere to the right.

The usefulness of testimony of this character depends upon the clarity with which it is presented. The reasons for the opinion are more important than the opinion itself.

A psychiatric examination may be ordered at any time -- before, during or after a trial. The examination may be accomplished by one medical officer, but more commonly it is done by a board of medical officers, only one of whom must be a psychiatrist. If it appears desirable, the patient may be hospitalized. It is, however, wasteful of beds, time and personnel to place in a hospital ward every accused for whom the issue of mental responsibility has been raised.

#### Standards of Mental Responsibility

A person is not mentally responsible in a criminal sense for an offense unless he was, at the time, so far free from mental defect, disease or derangement as to be able, concerning the particular act charged both to distinguish right from wrong and to adhere to the right. The phrase 'mental defect, disease or derangement' means those irrational states of mind which are the result of deterioration, destruction, or malfunction of the mental, as distinguished from moral, faculties.

The primary test of responsibility is the knowledge that the act was wrong. 'Wrong' is used in a concrete, not an abstract sense; that is, it implies that the community considers the act wrong, regardless of the accused's own private ethical system, and that the accused is aware of the community's viewpoint.

The Code of Military Justice recognizes the so-called "irresistible Impulse" concept in addition to the primary test. This concept recognizes that if a person, because of a mental illness, is wholly deprived of the power of choice or volition, he does not possess the freedom of action essential to criminal responsibility. Actually, the doctrine is but seldom applicable, and should be applied in any given case for cogent reasons only, and with great discretion, since it lends itself readily to abuse.

Medical opinion can assist the court in regard to the accused's ability to form specific intent and to premeditate his crime. Where psychiatric illness is found to exist, although the accused does not escape criminal responsibility, the court may consider this illness to be a mitigating circumstance and endeavor to impose a sentence which is just and suitable to the true degree of criminality of the accused.

## Mental Responsibility in Clinical Psychiatric Disorders

1. Alcoholism: This is not an excuse for criminal behavior unless the person was made drunk against his will, or an alcoholic psychosis or delirium tremens existed. Alcoholism may reduce the premeditation, however. 'Pathologic intoxication' poses a difficult issue, since this is characterized by complete and genuine amnesia for the period of the crime, but behavior during the interval is seemingly rational.

2. Mental Deficiency: This is rarely encountered in military service. An extreme grade of deficiency would be required to render the individual not responsible.

3. Amnesia and 'Double Personality': The medical officer must determine the clinical explanation for the alleged amnesia, and then must appraise the accused's criminal accountability as noted above. Possible clinical explanations may be (a) hysteria, (b) psychosis, (c) alcoholism, (d) head injury, (e) epileptic fugue, and (f) malingering. Air Force Manual 160-42 discusses the problems raised by each of these clinical conditions, and the interested reader should consult this Manual for greater detail.

4. Character and Behavior Disorders: These do not constitute a defense since these are disorders of "moral," not "mental" faculties. At times, the accused may seem to be on the borderline between a character and behavior disorder and a psychosis. In such cases it is the responsibility of the medical officer to make a clinical diagnosis based on sound psychiatric principles. The distinction may be difficult but it is proper to expect the expert examiner to reach a decision, since the court is entitled to a clear-cut expert opinion.

5. Sex Offenders: Each case must be considered on its merits. Such individuals do not lack ability to adhere to the right, since in most cases, at least, they would not indulge in this activity in the presence of law-enforcement officers. Homosexuality is usually a character and behavior disorder. After all cases of psychosis, psychoneurosis and mental deficiency have been considered there remains a residue grouped as 'sexual psychopathy.' These are characterized by (a) a compulsive act (although this does not mean that he would commit this in the presence of a police officer) in which the offender is fearful of the consequences but has such mounting tension that he feels impelled to go through with the act, (b) a repetitive act; it is only one of a series, part of a general pattern of behavior, (c) a traumatizing act which inflicts emotional or physical trauma on its victim.

6. Psychoneurosis: A severe condition may constitute one of the derangements of the mind within the definition of the standard of mental responsibility. The question arises chiefly in connection with hysterical fugue states, compulsive phenomena, and in those who

are sexually immature and deviated. A psychoneurotic reaction does not relieve the accused of accountability except in certain cases noted above, but may be a factor affecting the sentence.

7. Medico-legal Problems in Combat Psychiatry: A "normal" combat reaction does not alter responsibility. The same is true in combat-precipitated psychiatric illness which would not otherwise be regarded as removing accountability. Occasionally there occurs a severe anxiety reaction with major personality disorganization and clouding of consciousness. These individuals are not mentally responsible for acts committed while in the acutely disorganized phase of such reactions. Such cases are the true panics and the longer-lasting pseudo-psychoses in which the individual compromises his own safety. Mental deficiency in combat cases almost never renders the individual not responsible, although it may be extenuating.

#### Examining and Reporting in Criminal Responsibility Determination

It is important for the medical officer to realize that privileged communication is not recognized in the military service. Under military law the information acquired by a medical officer or a civilian physician in conversing with a patient, or in observing, examining or attending him may be inquired into by a court-martial. Such communications are not privileged before a court-martial, although the ethics of the medical profession forbid disclosure of them to unauthorized persons.

The medical examiner is entitled to full information regarding the facts which lead to question of the mental responsibility of the accused. This means that a report should not be written without an opportunity to evaluate all records which have been compiled by legal and investigative personnel. The examiner should insist on having this material made available to him. Failure to do so is invariably embarrassing to the examiner and casts doubt on the professional competence of an important witness.

In preparing his report, the examiner should attempt to answer these questions: (1) What is the clinical psychiatric diagnosis? (2) Did the accused know at the time of the offense that the act was wrong? (3) Was the accused able at the time of the offense to adhere to the right? If not, was this because of a mental disease, defect or derangement? Was his ability to adhere to the right wholly lacking? Or only partially impaired? (4) What is his intelligence level? (5) Was he drunk at the time the act was committed? If so, was this voluntary drunkenness? Is he a chronic alcoholic, a periodic drinker, a victim of alcoholic psychosis? Was this 'pathologic intoxication'? (6) Does he understand the nature and seriousness of the charges? Is he mentally capable of cooperating in his own defense? (7) Was the accused capable of forming the degree of intent, wilfulness, malice or premeditation called for by the nature of the offense charged?

The reader is referred to Air Force Manual 160-12 for suggest regarding the examination of the subject, preparation of the report, and effective presentation of testimony.

### Hospitalization of Mentally Ill Civilians

There will inevitably be occasions when the flight surgeon will need to know the proper legal procedures for the care of mentally ill civilians. The civilian may be a member of the family of one of his flyers, or may be a civil service worker referred to him for an emergency opinion. These people are not subject to military control so the flight surgeon should be familiar with the correct handling of such cases. As a general rule, the chief difficulty arises about the question of the rights of a mentally ill person. The doctor encounters legal entanglement when he departs from his therapeutic role; that is, secures medical care and supervision of the psychotic civilian beyond his professional authority to take this responsibility as his own. Examples of this would be sending an ambulance and medical corpsmen to bring a wife to the hospital when the husband calls to complain of her disturbed behavior. Another example would be to send such a patient to the Locked Ward against her will and without the support of the local civilian authorities.

Sometimes military medical officers get into difficulty in their evaluation of civil service workers. Supervisor A, for example, will refer Worker X to the flight surgeon's office because she has been mentally upset, not able to do her work, and has disrupted the work of others in the office. The flight surgeon in such cases is correct in referring the matter to a local civilian physician. He should avoid making a diagnosis or recommendation prejudicial to this worker, and should remain in the background. If he can be helpful in prescribing medication on an emergency basis, so much the better. He should not place himself in the position, though, of seeing the patient and making a diagnosis and recommendation which might later be regarded as endangering his or her economic livelihood. The troubled supervisor may see the nearest military physician as the answer to his dilemma, much to the latter's regret later on. In many overseas areas, of course, the military physician has primary responsibility for civil service workers. Here he is on safe ground and can proceed much as he would with military personnel.

### Commitment Procedures

Guttmacher and Weihofen(312) have written extensively about hospitalizing the mentally ill. Because the procedure varies from one state to another within the United States, the following section is given regarding formal commitment procedures. Three basic methods predominate:

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1. A judicial hearing before a judge after an examination by two physicians (in a few states, one physician). This is by far the most common procedure, and is found in some thirty states. A jury trial is permissible in about half of these states on demand or at the discretion of the judge. In Texas the law requires trial before a jury of six, and does not require examination by physicians.

2. A hearing before a commission, of which the judge or the clerk of the court is a member, the other members usually being two physicians or a physician and a lawyer. This is the method used in Iowa, Nebraska, North and South Dakota, Virginia and West Virginia.

3. Commitment on certification by physicians, without prior hearing. A hearing is had only if the person appeals the certification. Variations in this method are found in Delaware, Iowa, Louisiana, Maine, Maryland, New Hampshire, Pennsylvania, Rhode Island and Vermont.

A certain degree of uniformity has been achieved with respect to commitment of veterans. The Uniform Veterans' Guardianship Act, as revised in 1942, authorizes state courts to commit eligible veterans to the Veterans' Administration or other agency of the United States Government under the same procedure as that by which commitment to the State Hospitals is effected. Commitments by courts of other states are recognized, thus permitting transfer of the patient from a federal hospital in one state to one in another. This uniform act has been enacted in whole or in part in all states except Delaware.

Commitment by judicial procedure follows a general pattern: proceedings are usually set in motion by a sworn petition of relatives, friends or certain officials. A certificate by one or more physicians that the person is mentally ill and in need of commitment must accompany the petition. The person sought to be committed must be notified of the proceedings and usually is required to be present at the hearing. In most states the court appoints physicians to examine the person; this examination is usually very informal and is held at the person's home or wherever he may be, before the formal hearing.

#### Emergency and Temporary Procedures

The police and other agencies sometimes are called upon to take custody of mentally ill persons who are likely to injure themselves or others if not promptly restrained. In most states, unless there is justification for arresting such person on a criminal charge, there is no clear legal authority to act. There is in fact authority at common law for any officer or private person to restrain a person dangerous to be at large, but this is (1) limited to the dangerously insane, (2) puts the burden of establishing such dangerousness on the officer or person doing the restraining if the person later complains that the restraint was illegal, and (3) not being specifically authorized by statute, may not be regarded by the officers as law.

### Voluntary Admission

Almost every state provides today for voluntary admission. Statutes commonly contain a provision requiring the superintendent to satisfy himself that the patient understands his application. Most voluntary admission statutes provide that a voluntary patient shall be released within a specified number of days after he gives written notice of his desire to leave, unless, in the meantime the hospital authorities start proceedings to have his status changed to that of an involuntary patient. In military hospitals, as a rule, admission of civilian dependents is on a voluntary basis, usually for a maximum of 90 days. Since commitment is usually not possible to a military hospital, the flight surgeon should ascertain that the dependent agrees to hospitalization voluntarily. If the consent of the patient cannot be obtained, the flight surgeon should advise the family to go through the usual civilian commitment channels. Caution should be exercised, as well, in providing air evacuation of a dependent to a military or other psychiatric hospital, even when it appears to be wholly on a voluntary basis.

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